THE IRON TRADE REVIEW

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SLIGHT IMPROVEMENT

IN VOLUME OF NEW TONNAGE AND SPECIFICATIONS.

Pig Iron Production Almost Stationary—More Stacks in Blast—Decline in Ore Shipments—New Penalty System.

Although the iron and steel industry is now passing through what is usually regarded the dullest season of the year, trade conditions are not without their encouraging features. The volume of new orders, especially for bars and kindred products, is larger than at any time since October, and specifications in all finished lines are being more freely received by the mills. Pending the taking of annual inventories and for making repairs, the list of idle plants has temporarily been increased. An exception to the regular summer closing policy has been made in the tin plate trade, owing to the large tonnage booked, and the leading interest is now operating 90 per cent of its mills.

Large Contracts for Pig Iron

Aside from a slight weakening in the price of southern iron, which can now be had at $11.50 Birmingham for No. 2 foundry, quotations in other centers are fairly well sustained. In the east the recent purchases of a large pump interest aggregate 20,000 tons, and the International Harvester Co. has closed for 9,000 tons with a producer in the central west, for shipment during the last half of the year to one of its New York plants. The sale of 4,900 tons of malleable Bessemer and foundry grades, to an Indiana implement maker, is also reported.

Finished Material

In structural lines the placing of several large contracts is being deferred. New projects under consideration include the New York Municipal office buildings, requiring 17,000 tons of steel and 5,000 tons for a large hotel. Contracts for steel bars are being rewritten to include the unspecified tonnage and consumers' additional requirements to July 1, 1909, although recent concessions on other finished products apply only on deliveries to Oct. 1.

Iron Ore Shipments

The most interesting development in the ore trade is the adoption of a new penalty system on iron ore contracts by several of the leading shippers. The clause, which will be incorporated in this season's contracts, provides for a concession to the furnaces on ores running below the guarantee and a bonus to the shippers if the guarantee is exceeded. Ore shipments for June from upper lake ports amounted to 2,585,682 tons, a loss of 3,847,687 tons, as compared with June last year. To July 1 the total shipments have been only 2,870,997 tons, against 12,685,624 tons during the same period in 1907, a decrease of 9,814,627 tons. Notwithstanding the fact that furnace operators prefer to await developments before closing their season's requirements, and the limited tonnage brought down the lakes to date, authorities in the trade still insist that the season's movement will reach a total of 20,000,000 tons.

Pig Iron Production

Our blast furnace statistics show a production of 1,134,335 tons in June, as compared with 1,168,002 tons in May, a decrease of 33,667 tons. The daily average for June was 37,811 tons, against 37,677 tons in May. The active stacks show an increase of nine, notwithstanding the fact that many furnaces were blown out during the month.

ENCOURAGEMENT

IN IRON AND STEEL TRADE FORECAST.

Bright Outlook—New Orders and Specifications Against Contracts Have Increased During Last Two Weeks.

Judge E. H. Gary, chairman of the United States Steel Corporation, sailed Tuesday for Europe, where he will remain until early in September. Before sailing he made the following statement:

"From the viewpoint of the United States Steel Corporation the iron and steel business has been better during the last two weeks than at any time since the depression of last October. Undoubtedly the result of the Chicago convention has contributed largely to this favorable condition. The tendency since the beginning of the calendar year has been toward improvement, with some fluctuations, until the readjustments in prices were made in the early part of June, when the placing of orders, in most lines, was practically suspended. This was because many of those who were contemplating additional purchases were in doubt as to whether or not there would be further adjustments.

"However, there seems to be a general feeling that bottom prices have been reached, and this, coupled with the satisfactory outcome of the Chicago convention, has increased buying and also increased specifications against old orders. It is hoped present conditions will at least be maintained during the summer, although it is not expected business will be brisk or entirely satisfactory during the next 60 days, nor until there is a general feeling that the nominees of the Republican convention are absolutely certain of election. When that time arrives, it seems to some of us, at least, the iron and

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THE WEEK IN IRON CENTERS

PITTSBURG.

Tin Mills Are Operating at Almost Normal Capacity—Pig Iron Dull.

Office of THE IRON TRADE REVIEW, 510 Park Bldg., July 7.

The iron and steel industry is now passing through what is normally regarded as the dullest season of the year and the tone of the whole situation is one of quietness and moderation. Numerous plants are temporarily idle pending the taking of annual inventories or the making of repairs to equipment, preparatory to a resumption with renewed vigor upon last half business.

Under such conditions, little evidence of consistent improvement in the entire market might be expected to appear and in fact, it cannot be readily perceived that much progress is being made toward former trade activity. It is apparent, however, that the atmosphere is clearing, that sentiment is universally improved and that in some lines the tonnage coming to the mills is constantly increasing. In this respect, the present activity of the Homestead works of the Carnegie Steel Co. may be cited. These mills have had fuller operations during June than in any other month of the current year.

The excellent crop prospects foreshadow the most definite promises of approaching activity. The railroads, recognizing this fact, are inquiring more liberally for those iron and steel products that are used in rolling stock repairs and are in reality, carrying on this work at the present time. Specifications against old contracts, received from car companies recently have increased in a marked degree. Any actual buying by the railroads for any purposes is not of large proportions as yet, but confidence is expressed by iron and steel officials that this will materially increase soon.

Of considerable importance in iron and steel circles, is the second conference between the Western Bar Iron Association and the Amalgamated Association of Iron, Steel & Tin Workers, which opened at Detroit, Tuesday, representing another attempt at adjusting the boiling and puddling scales for the ensuing year. The outcome of this meeting is expected to have considerable bearing upon other wage matters, including the present deadlock between the Republic Iron & Steel Co. and the Amalgamated association.

Pig Iron.—The past week has been entirely devoid of activity in pig iron. The business of the several grades booked, which in the aggregate did not reach any figure of importance, consisted entirely of small tonnages. This condition is attributed largely to the influence of the hot weather season at hand, and little improvement is expected to be shown throughout July and probably August. Present prices appear well established. Inquiry is light, and the largest prospective order in sight is from a local foundry for from 500 to 1,000 tons of foundry iron.

The average price of Bessemer iron for the month of June was $16 valley or $16.90 Pittsburg, compared to $16.02 valley or $16.92 Pittsburg in May, $16.59 valley in April, $16.96 valley in March, $17 valley in February and $18.10 valley in January.

The Shenango Furnace Co. Tuesday applied the torch to its new No. 1 stack which will make basic iron. The new furnace is of the most modern construction, and will produce upwards of 400 tons daily. This acquisition to the active group makes nine stacks in operation in the valley as follows: Shenango, three furnaces all on basic, Cherry valley on foundry and Fannie on basic, Youngstown Steel on Bessemer, Stewart on Bessemer, Canal Dover on basic, and Andrews & Hitchcock on foundry and forge. The Carnegie Steel Co. put in one stack at New Castle this week. Valley stocks of Bessemer and basic have slightly increased, and stand at about 55,000 tons. For prompt and third quarter delivery we quote as follows, the high price on Bessemer iron being for chilled cast:

Bessemer, valley	$16.00 to 17.00
Bessemer, Pittsburg	16.90 to 17.90
No. 1 foundry, Pittsburg	16.15 to 16.40
No. 2 foundry, Pittsburg	15.90 to 16.15
Gray forge, Pittsburg	14.90 to 15.15
Basic, valley	15.25 to 15.50
Basic, Pittsburg	16.15 to 16.40

Ferro-Manganese.—The ferro-alloy market continues to be limited to small sales. Ferro-manganese is generally quoted $44 to $45 Baltimore or $45.95 to $46.95 Pittsburg, but odd carload lots are being picked up at less than these figures. We note the sale of 25 tons to a local foundryman this week at $45.20 delivered or $43.25 Baltimore. The same interest also took 100 to 200 tons of silico-spiegel for last half at $32.50 delivered. Prices on 50 per cent ferro-silicon are weak and several carloads were sold this week. There is also an inquiry out for two carloads.

Imported 50 per cent ferro-silicon is quoted $70 Pittsburg on forward deliveries; domestic 12 per cent, $29; 11 per cent, $28; 10 per cent, $27. The lower grades of imported ferro-silicon are upon about the same basis. These quotations are applicable to Pittsburg territory.

Plates.—Little change is shown in the plate market. Active pipe line construction by the Standard Oil Co. requires the rolling of a large tonnage of plates by the Carnegie Steel Co. for the manufacture of this pipe by the National Tube Co. Tank steel is not active. There is some riveted pipe work going, and a contract to be awarded this week by the Arizona Power Co. for a line in Arizona, will require about 1,000 tons of plates. Prices are being shaded by several of the independents. We quote:

Tank plate, ¼-inch thick, 6¼ to 100 inches, 1.60c f. o. b. mill Pittsburg. Extras are as follows per 100 pounds: Boiler and flange steel plates, 0.10c; A. B. M. A. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.30c; marine steel, 0.40c; locomotive firebox steel, 0.50c; all sketches, excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end not being less than 30 inches, 0.10c; circles, 0.20c. Plates in width over 100 inches up to 110 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1c. Gages under ½-inch to and including 3/16-inch plate on thin edges, 0.10c; under 3/16 to and including No. 8, 0.15c; under No. 8 and including No. 9, 0.25c. Five cents extra for less than carloads. Terms, net cash in 30 days.

Sheets.—Specifications for all grades of sheets are being received in larger volumes, and these are well distributed throughout the general trade. As a result the operations of the leading interest are slightly increased this week, but still remain less than 50 per cent. We quote:

Black steel sheets, cold rolled, No. 28 gage, 2.50c per 100 pounds, and galvanized sheets, No. 28 gage, 3.55c per 100 pounds, plus the regular extras.

Blue annealed: Nos. 11-12, 1.85c; Nos. 13-14, 1.90c; Nos. 15-16, 2c. Corrugated roofing, $1.75 per square for No. 28 painted, 2½-inch corrugation; and $3.10 per square on galvanized roofing, 2½-inch corrugation, No. 28.

Tin Plate.—The canning interests continue to specify heavily for tin plate, and the prospects are favorable for normal activity of the mills throughout the greater part of the summer. The American Sheet & Tin Plate Co. continues to operate 213 mills or about 90 per cent of its equipment. We quote:

Coke tin plate, 100-pound basis, 14

x 20, $3.70 f. o. b. mill Pittsburg district. Terms, 30 days, less 2 per cent for cash in 10 days.

Rails and Track Material.—Owing to the improved demand for rerolling rails, the mills have advanced their price on light sections about $2, and are now quoting on a basis of about $23 Pittsburg for 25 to 45-pound sections. Prices on lights rolled from billets are being shaded to meet the competition of the rerollers. There are no developments in standards. The mill operations of the local maker have not changed. On present specifications on Bessemer rails we quote as follows:

Fifty-pound and heavier, 500-ton lots and over, $28; carloads and less than 500 tons, $30; less than carload lots, $32; 8-pound, $36; 12-pound, $32; 16-pound, $30; 20-pound, $29; 25 to 45-pound, $28; angle splice bars for standard sections, $1.65; standard spikes, $1.70 to $1.80 Pittsburg; hand spikes, $1.80 to $1.90 Pittsburg.

Steel.—The billet market is quiet, and there are few sales. Sheet and tin bars are regularly being taken in large tonnage by the sheet and tin plate interests, and the mills are operating favorably.

Bessemer and open-hearth billets, base sizes are quoted at $25 Pittsburg, and forging billets at $27 Pittsburg, subject to the division of the freight charge over $1 and not exceeding $3, and sheet and tin bars at $27.50 Pittsburg, valley and Wheeling territory, and $27 Pittsburg for delivery to other points.

Hoops, Bands and Cotton Ties.—The coopers are about to come into the market again for their requirements of hoops and bands. There is a fair business moving in this market. We quote the following official prices:

Cotton ties, 85c per bundle Pittsburg, plus the freight on lots of 3,000 bundles or more, and 88c per bundle Pittsburg for less than 3,000 bundle lots.

Hoops in carload lots, 1.80c; in less than carload lots, 1.90c; bands, 1.40c, base half extras as per standard steel.

Merchant Bars.—The bookings in steel bars continue good, and specifications on contracts are quite satisfactory. With but few exceptions, the implement makers have covered for their annual requirements. The Pennsylvania R. R. is preparing to put its rolling stock in this district in shape for a heavy fall freight movement. It has some moderate inquiries now in the market, and is expected to buy later. The nut and bolt interests which had been largely consuming iron bars before the recent reduction, are specifying more freely for steel bars. The increased price of scrap has stiffened the prices of the rerollers on steel specialties, and the mills rolling from new steel are competing more favorably with them. Bar iron is dull, and talk of increased prices soon, is current. Outside of eastern mills which are quoting in an open market, prices are quite firm. All the nine iron mills and the steel plant of the Republic Iron & Steel Co. are still idle in their summer shutdown, and no date for their resumption has been set. We quote as follows:

Common iron bars, 1.40c Pittsburg in carload lots and over; 1.45c in less than carloads; 1.32c to 1.35c base Pittsburg plus freight to point of shipment on western deliveries; Bessemer steel bars, 1.40c; plow and cultivator, 1.40c; channels, angles, zees, tees, under 3 inches, 1.50c, all f. o. b. Pittsburg. The following differentials are maintained on steel: Less than 2,000 pounds, 0.10c advance; less than 1,000 pounds of a size, 0.30c advance. Cold rolled and ground shafting 56 per cent in carloads, and 52 per cent in less than carloads, delivered in base territory; open-hearth spring steel, 2.25c to 2.50c; sleigh shoe flats, 1.60c to 1.65c; smooth finished machinery steel, 1.90c to 2c; toe calk, 2.10c to 2.15c. Planished and machine straightened tire steel is 1.80c base. Iron finished tire under 1½ by 1½ inches, 1.75c; iron finished tire, 1½ by 1½ inches and over, 1.60c. All tire subject to ½ extra on the steel card.

On cold rolled strip steel, width 1½ inches and wider and 0.100 inch and thicker, we quote base prices per 100 pounds, $3.60 on hard and $3.75 on soft.

Structural Material.—With respect to rolling orders in structural shapes, the month of June is reported to have been the best of the current year for the Homestead works of the Carnegie Steel Co. A very full schedule of operations at this plant is now being maintained. New work coming to fabricators however, is light, and the Ambridge works of the American Bridge Co. is running at about 40 to 45 per cent. The American Bridge Co. has taken the contract for 2,000 tons of eye bars for the new P. & L. E. railway bridge at Beaver, Pa. We quote:

Beams and channels, 15-inch and under, 1.60c; over 15 inches, 1.70c; zees, 1.60c; tees, 1.65c; angles from 3 to 6 inches, 1.70c; universal and sheared plates, 6¼ inches and wider, 1.60c base.

Merchant Pipe.—The effect of the dull season in merchant pipe is not so pronounced since stock orders in the recent past have not been large, and buying has only been in accordance with actual needs. Line pipe activity continues, and the report is revived that the Standard Oil Co. has placed orders for 600 miles of 8-inch pipe for a line from Oklahoma to New Orleans. A local gas interest this week took five miles of 3 and 4-inch pipe. We quote the following official base discount, with an additional one point and five off to jobbers:

	—Steel—		—Iron—	
	Black.	Galv.	Black.	Galv.
¼ to 6 inches....	75	65	73	63

Boiler Tubes.—The situation in boiler tubes is very quiet with respect to orders both for railroads and the general trade. We continue to quote the following discounts:

	Iron.	Steel.
1 to 1¼ inch.....	42	47
1¼ to 2¼ inch.....	42	59
2¼ inch	47	61
2¼ to 5 inch.....	52	65
6 to 13 inch.....	42	59

2½ inches and smaller, over 18 feet, 10 per cent net extra.
2¾ inches and larger, over 22 feet, 10 per cent net extra.

Wire Products.—There is a distinctly better tone in wire products. Confidence in prices is stronger, and the past week has been a comparatively good one from the standpoint of the mills, particularly as to specifications from jobbers. We quote as follows:

Wire nails, jobbers' carload lots, $1.95; retailers' carload lots, $2; painted barb wire, jobbers' carload lots, $2.10; retailers' carload lots, $2.15 with 30c for galvanizing; plain wire to jobbers in carloads, 1.80c; and to retailers in carloads, 1.85c.

Wire Rods.—Although the manufacturing trade in wire lines is not as active as that from the jobbers, there is more demand for rods, and we quote $33 Pittsburg on Bessemer and $34 Pittsburg on open-hearth rods.

Coke.—Though the coke market is not as active as it has been of late, prices do not appear to be any weaker. A number of foundry interests continue to close for their yearly requirements at current prices. The spot market in furnace coke has practically disappeared. We quote standard Connellsville foundry coke at from $2 to $2.25 ovens and standard Connellsville furnace coke at from $1.65 to $1.85 ovens, the lower quotations being for prompt shipment. For the week ending June 27 the report of the *Courier* shows 15,362 ovens active, 22,-

013 ovens inactive and a production of 164,839 tons as compared to 15,340 ovens active, 22,035 ovens inactive and a production of 162,404 tons the previous week. For the six months up to July 1, 1908, the total production in the Connellsville region was 4,245,246 tons corresponding to 10,752,381 tons in the same period of 1907, showing a falling off in output of practically 60 per cent.

Old Material.—Due to some speculation by dealers, there is a slight stiffening in several grades of old material, particularly heavy melting steel, bundled sheet scrap, old car wheels and cast borings. From the mills however, there is no increased demand, and in this respect the market is extremely quiet. We quote nominally gross tons delivered in the Pittsburg district as follows:

Heavy melting scrap, $13.50 to $14; rerolling rails, $14.50 to $15; bundled sheet scrap, $10 to $10.50; iron axles, $19 to $20; old iron rails, $16 to $17; No. 1 wrought scrap, $13.25 to $13.75; old car wheels, $13.50 to $14; low phosphorus, $17.50 to $18; machine shop turnings, $8 to $8.50; cast borings, $7.75 to $8.25; No. 1 cast scrap, $13.75 to $14.25.

CHICAGO.

Implement Makers Continue to Purchase Pig Iron and Steel Bars.

Office of THE IRON TRADE REVIEW,
1328 Monadnock Block, July 7.

A feeling of encouragement may be gained from the market trend at this time. There is little to point to in the way of strikingly increased operations or large transactions in this territory save perhaps the undeniably strong position of the agricultural implement manufacturers, but the testimony from a variety of branches of manufacture covering comparative periods show gains that are very substantial in their character. This applies in a large measure to finished materials. Manufacturers of bars report that the buying movement has exceeded expectations and the principal producer alone expects to close contracts for 100,000 tons before the end of the present quarter. During the last week one Indiana implement manufacturer bought about 9,000 tons. The railroad situation is not improved and in the west it appears as though the buying of rails during the balance of this year will be light. The demand for structural materials is small and the prices at which contracts are being taken, leave but little incentive to fabricators. The scrap market is lifeless and the only buying noted is that required to absorb railroad offerings. Pig iron holds firm for future delivery but some weak spots appear in prompt shipment iron. The prices are unchanged and we quote $12 for No. 2 at Birmingham, and $17.50 Chicago for northern iron. The principal sale of the week was 4,900 tons to the plow company at South Bend, Ind.

Pig Iron.—The leading purchase of pig iron during the week was the 4,900 tons by the Oliver Plow Co., of South Bend, Ind. Of this 3,000 tons was standard Bessemer, obtained through sales offices in this city. The balance, 1,900 tons, was sold by an Ohio furnace in the lake district. Aside from this the transactions of the week covered quantities from carloads to 250 tons. One lot of 200 tons of southern iron running 3 per cent silicon for delivery beginning with a carload in July brought $12.50 Birmingham basis. This is in keeping with the fairly prevalent and firm feeling that southern furnaces want no future iron at less than $12 Birmingham for No. 2 and are not even eager to take prompt shipment orders at much of a reduction from that price though reports are current that $11.75 iron can be bought in quantity for immediate shipment, and even $11.50 has been spoken of. The competition from Ohio furnaces continues to unsettle the price of local irons which is nominally $17 for prompt shipment and $17.50 for future delivery. However, the feeling has again manifested itself here that the close of this year will see material advances over present prices and some of the furnace interests have ceased all aggressive action in the pursuit of orders.

Lake Superior Charcoal	$19.50 to 20.00
Northern Foundry No. 1	17.50 to 18.00
Northern Foundry No. 2	17.00 to 17.50
Northern Foundry No. 3	16.50 to 17.00
Southern Foundry No. 1	16.85 to 17.35
Southern Foundry No. 2	16.35 to 16.85
Southern Foundry No. 3	15.85 to 16.35
Southern Foundry No. 4	15.35 to 15.85
Southern No. 1 Soft	16.85 to 17.35
Southern No. 2 Soft	16.35 to 16.85
Southern Gray Forge	14.35 to 14.85
Southern Mottled	15.10 to 15.60
Southern Silveries, 4 per cent Silicon	17.85 to 18.35
Southern Silveries, 5 per cent Silicon	18.35 to 18.85
Southern Silveries, 6 per cent Silicon	19.35 to 19.85
Jackson Co. Silveries, 6 per cent	19.90 to 20.40
Jackson Co. Silveries, 8 per cent	20.90 to 21.40
Jackson Co. Silveries, 10 per cent	22.90 to 23.40
Malleable Bessemer	17.00 to 17.50
Standard Bessemer	18.25 to 18.75
Alabama Basic	16.35 to 16.85

Billets and Rods.—Small orders for forging billets are more numerous, but in general there is no increase in the volume of billet inquiry. The demand for rods is similar in character. Prices are without change and we quote rolling billets $26.50 and forging billets $28.50 base, Chicago. We quote f. o. b. Pittsburg, Bessemer wire rods, $33; open-hearth $34 and chain rods $33.

Plates.—A slight improvement is noted in the volume of plate business but the betterment is confined to an increased number of orders and increased specifications rather than purchases of larger quantities. The sheared plate mill of the leading interest at South Chicago which started last week with the intention of running a few days is still on, and will probably continue to run throughout the balance of this week. We quote for Chicago delivery as follows:

Plates, ¼-inch and heavier, 6¼ to 100 inches wide, either universal or sheared, 1.78c Chicago. For extras see Pittsburg report. Jobbers' prices for shipment from local stocks are as follows: Tank steel, ¼-inch and heavier, up to 72 inches wide, 2c to 2.10c; from 72 to 96 inches wide, 2.10c to 2.20c; 3/16-inch up to and including 60 inches wide, 2.10c to 2.15c; 72 inches wide, 2.35c to 2.45c; No. 8, up to 60 inches wide, 2.10c to 2.15c. Flange and head quality, 25c extra.

Structural Steel.—Prices for structural material are very unsatisfactory. No work is being figured with allowances for anything but actual costs in the bids submitted and orders are being accepted with no other incentive than to keep plants running. On the other hand, consumers are still strongly anticipating changes more favorable to them. The week just passed exhibited an improved condition as compared with the week preceding, but many thousands of tons are not being heard from that should have been placed some time since. During the week the principal fabricator received contracts for 1,082 tons, including 365 tons for the American Smelting & Refining Co. at Neville, Nev., 605 tons for the El Paso, Tex., viaduct and 100 tons for the Twin Falls Sand & Water Co., Twin Falls, Idaho. The Western Electric Co. is increasing its plant at Hawthorne, Ill., and has contracted with Richards & Noelke, Indianapolis, for 1,225 tons of structural steel. Hansell-Elcock has been awarded 500 tons for the Denver stock pavilion. The Chicago & Northwestern railroad is receiving bids today on 2,000 tons of bridge structurals mentioned last week and in addition has another inquiry out, the first in connection with the new terminal, for about 750 tons. The Chicago, Milwaukee & St. Paul road has an inquiry in the market for 660 tons of bridge structurals. The Western Steel Car & Foundry Co. is about to begin work on the addition to its plant for which will be required about 600 tons. A small order for J. S. Lillis, Kansas City, was taken by the Armourdale Foundry Co. We quote as follows:

Beams and channels, 3 to 15 inches,

inclusive, 1.78c to 1.81c delivered Chicago. For extras see Pittsburg report. Quotations from store are as follows for carload lots and over:

All angles, 3 inches and larger, including 6 inches, $1.95 per 100 pounds; angles over 6 inches, $2.05 per 100 pounds, base; beams, 3 to 15 inches, inclusive, $1.95 per 100 pounds, base; channels, 3 inches and larger, $1.95 per 100 pounds, base. Less than carload lots are $1 a ton higher than foregoing prices.

Rails and Track Supplies.—The demand for light rails continues to hold up fairly well and the business in track supplies is very good with a prospect for indefinite continuance. The Chicago, Burlington & Quincy bought 1,000 kegs of spikes and another road purchased 775 kegs during the week. Specifications are received regularly and in fairly good volume. While specifications continue to come in on contracts for standard sections and the leading producer has about a month's tonnage ahead, there is little interest displayed and in the west the railroad requirements appear to be well filled for this year. We quote:

Standard rails, $28 f. o. b. mill, full freight to destination; light rails, 25-pound to 45-pound, $28; 20-pound, $29; 16-pound, $30; 12-pound, $31. Track supplies, f. o. b. Joliet, angle bars, 1.50c to 1.60c; spikes, 1.80c to 1.90c; track bolts, with square nuts, 2.20c to 2.25c; with hexagon nuts, 2.35c to 2.40c. Small railroad and square boat spikes, 1.90c base, f. o. b. Chicago.

Merchant Bars.—The buying of steel bars continues and the total volume contracted for bids fair to exceed anticipations by the end of the present quarter. Up to the present time the leading interest has contracts for about 70,000 tons, the last week bringing in about 8,000 tons. By the end of the quarter it is expected from what seems to be in sight now, that close to 100,000 tons of bars will have been purchased. Iron bars are also in fair demand. One of the independent mills during the past week sold 2,000 tons of steel bars and 500 tons of bar iron. The mill situation is very quiet at present, but the plant of the Interstate Iron & Steel Co. is in continuous operation with a very encouraging list of specifications and inquiries. Buying of steel bars is confined almost entirely to implement manufacturers. So far as can be ascertained prices seem to be fairly steady at the following quotations:

Bar iron, 1.50c to 1.53c; soft steel bars and bands, 1.58c, half extras; soft steel angles, less than 3 x 3, 1.68c; hoops, 1.98c base, full extras; planished or smooth finished tire steel, 1.78c; iron finish, up to 1½ x ½ inch, 1.73c base tire card; iron finish, 1½ x ½-inch and larger, 1.58c base steel card; channel for solid rubber tire, ¾ to 1 inch, 2.08c, and 1⅛-inch and larger, 1.98c; smooth finished machinery steel, 1.83c; flat sleigh shoe, 1.63c; concave and convex sleigh shoe, 1.83c; cutter shoe, 2.05c; toe calk steel, 2.13c; railway spring, 1.93c, base steel card; vehicle spring steel, 1.98c base, vehicle card; crucible tool steel, 7c to 9c, with higher prices asked on special grades. Quotations on shafting are 56 per cent off the list for carload lots, and 52 per cent off for less than carload lots, carload freight allowed to points in base territory. On iron and steel bars from local stocks, we quote as follows: Bar iron, 1.90c to 2c, full extras; soft steel bars, 1.80c per 100 pounds base, plus half extras; soft steel hoops, 2.30c, full extras.

Cast Iron Pipe.—The letting at Sheridan, Wyo., for 3,000 tons, bids for which were once rejected will come up again this week. There are also lettings at Wahoo, Kas., for 500 tons; Concordia, Nebraska, 300 tons and at Batavia, Ill., 200 tons. The contract for 3,500 tons for the city of Cleveland was awarded to the United States Cast Iron Pipe & Foundry Co. We quote for Chicago delivery as follows: 4 to 6-inch pipe, $27; 6 to 16-inch, $26; larger sizes, $25; gas pipe, $1 a ton higher.

Merchant Pipe and Boiler Tubes.—The prospect for increased business in tubular goods is reported bright and present business shows appreciable gains.

We quote mill discounts, Chicago delivery, carload lots, as below. On steel pipe jobbers are allowed a concession of one point and 5 per cent additional from the schedule in force.

	—Steel—	
	Black.	Galv.
¾ to 6 inches, inclusive.....	73.2	63.2
7 to 12 inches, inclusive.....	70.2	55.2

BOILER TUBES.			
	Steel.	Iron.	Seamless.
2¾ to 5 in., inclusive....	63.2	50.2	50.2

Mill quotations on iron pipe are three points higher than the foregoing prices.

We have revised our prices from store, as below. A concession of one-half to one point from these prices is allowed by Chicago jobbers on carload orders shipped from local stocks. We quote for less than carload lot as follows:

MERCHANT PIPE.

	—Steel—	
	Black.	Galv.
⅛ to ¼ inch.....	65	49
⅜ inch	67	53
½ inch	69	57
¾ to 6 inches.....	73	63
7 to 12 inches.....	69	54

Store prices for wrought iron pipe, carload lots, from Chicago stock, are as follows: One-eighth to ¼-inch, 61c; ⅜-inch, 63; ½-inch, 65; ¾-inch to 6 inches, 70; 7 inches to 12 inches, 67. Boiler tubes from store are unchanged.

Sheets.—The volume of trading in sheets is apparently far from satisfactory, and price shading to the extent of $1 a ton has been encountered from several sources. From store, prices are well maintained, and a fair degree of activity obtains. The percentage of mill capacity in operation is partially illustrated by the fact that the Inland Steel Co. is operating only four out of ten mills. For mill prices see Pittsburg report. We quote prices for delivery from local stocks.

No. 10, 2.15c to 2.25c; No. 12, 2.20c to 2.30c; No. 14, 2.25c to 2.35c; No. 16, 2.35c to 2.45c; Nos. 18-20, 2.60c to 2.65c; No. 22-24, 2.65c to 2.70c; No. 26, 2.70c to 2.75c; No. 27, 2.75c to 2.80c; No. 28, 2.85c to 2.95c; No. 30, 3.25c. Galvanized sheets, No. 10 to 16, 3.05c to 3.10c; Nos. 18 to 20, 3.15c to 3.25c; Nos. 22 to 24, 3.30c to 3.35c; No. 26, 3.50c to 3.55c; No. 27, 3.70c to 3.75c; No. 28, 3.90c to 4.00c; No. 30, 4.40c to 4.50c.

Wire Products.—A very decided increase in the volume of orders was recorded the past week and the resumption of demand thus indicated comes almost a fortnight in advance of anticipation. One day's tonnage for the leading producer last week exceeded 4,000 tons through the local office which is well up to normal. We quote for Chicago delivery as follows:

Wire nails, $2.13; painted barb wire, $2.28; galvanized barb wire, $2.58; smooth annealed wire, $1.98; smooth galvanized wire, $2.28; polished staples, $2.23; galvanized staples, $2.53. Carload lots to retailers, 5 cents higher; less than carload lot, 15 cents higher.

Coke.—The coke situation retains a decided strength although there is not any heavy buying at present. Standard Connellsville furnace coke cannot be bought it is understood for less than $1.85 at the ovens with prices spreading to $2. Foundry coke continues at $2.25 for Connellsville with a limited demand.

Old Material.—The inactivity of the scrap market continues and the weakness of prices is a marked characteristic. Quotations have sagged

slightly on some materials during the week, but trading is too light to establish many changes. A list of 7,000 tons is offered by the Baltimore & Ohio railroad and it contains among other things, 2,000 tons of old steel rails and 600 tons of wrought iron bridge material. The Wisconsin Central is offering about 400 tons. We have revised our prices and quote gross tons in the first paragraph as follows:

Old car wheels	$13.00 to 13.50
Old iron rails	15.50 to 16.00
Re-rolling rails (3 ft. and over)	14.00 to 14.50
Old steel rails (3 ft. and under)	12.50 to 13.00
Light section relayers, 45 lbs. and under, subject to inspection	21.00 to 23.00
Relaying rails, subject to inspection	19.00 to 19.50
Frogs, switches and guards	11.75 to 12.25
Heavy melting steel	11.25 to 11.75

We quote, net tons, as follows:

No. 1 R. R. wrought	$11.75 to 12.25
No. 2 R. R. wrought	10.75 to 11.25
Knuckles, couplers and springs	11.25 to 11.75
Shafting	14.50 to 15.00
Iron car axles	16.50 to 17.00
Steel car axles	15.00 to 15.50
Dealers' forge No. 1	9.50 to 10.00
Pipes and flues	8.25 to 8.75
No. 1 cast, 150 lbs. and less	12.00 to 12.50
No. 1 mill	7.00 to 7.50
Mixed busheling (Nos. 1 and 2)	7.00 to 7.50
Country sheet	4.50 to 5.00
No. 1 boiler cut	8.00 to 8.50
Boiler punchings	10.00 to 10.50
Cast borings	4.50 to 5.00
Mixed borings, etc	4.50 to 5.00
Machine shop turnings	5.50 to 6.00
Railroad malleable	11.00 to 11.50
Agricultural malleable	10.00 to 10.50
Stove plate and light cast scrap	10.25 to 10.75
Old iron splice bars	14.25 to 14.75

CLEVELAND.

New Iron Ore Penalty System—Large Pig Iron Sale.

Office of THE IRON TRADE REVIEW, Browning Building, July 7.

Iron Ore.—The adoption, by several of the leading ore interests, of a new penalty system to meet the complaints of furnace men regarding ores running below the guarantee, is one of the most interesting developments in the ore trade. It has been generally recognized that the existing system is unjust to both the furnace and the shipper, but as long as the ores did not run much below or above the guarantee there was relatively little complaint. With many ores running considerably below or above the base, though it was reduced for the season of 1907, there has been considerable complaint on the part of furnace men.

According to the new penalty system, the furnaces are to receive a concession on ores running below the base, but on the other hand, a bonus is to be paid to the shippers on all ores exceeding the guarantee. Several of the leading ore interests have already adopted the system, and it is probable that others will incorporate this clause in this season's ore contracts. The arrangement is generally conceded to be an equitable one and should prove satisfactory to both shippers and consumers.

Although a fair tonnage of ore was sold during the past week, and considerable inquiry has developed, it is evident that furnace operators prefer to wait, and it is doubtful if any contracts of importance will be closed before the end of the month. Ore shipments from upper lake ports to July 1 amount to only 2,870,997 tons, as compared with 12,685,624 tons to July 1, 1907, a decrease of 9,814,627 tons. On this basis, the season's movement would hardly exceed 12,000,000 tons. The May and June shipments, however, can not be taken as a basis on which to estimate the season's output, owing to the plan of starting shipments late and having more activity toward the close of navigation. Estimates still place the season's movement at 20,000,000 tons, and if the June record is maintained this total will probably be reached before the close of navigation. Thus far no ore has been received at Ashtabula, and indications are not at all favorable to the opening of the docks at this point in the near future. The facilities at other ports are ample to handle the cargoes that are being received, although it is already evident that too many boats are in commission for the tonnage that is offered.

On base ores, with the guarantee of 55 per cent on old range and Mesabi Bessemer, and 51½ per cent on old range and Mesabi non-Bessemer, we quote as follows: Old range Bessemer, $4.50; Mesabi Bessemer, $4.25; old range non-Bessemer, $3.70, and Mesabi non-Bessemer, $3.50.

Pig Iron.—The International Harvester Co., Chicago, has purchased 9,000 tons of No. 2 foundry iron from a local furnace interest for delivery during the remainder of the year. The iron will be shipped from a Buffalo stack to one of the New York plants of the Harvester company. This is by far the largest order that has been closed in this market for many months, and indicates that the agricultural implement interests will operate at capacity throughout the remainder of the year. Local foundries are buying in small lots only, at ruling quotations, which are reaffirmed as follows:

Bessemer	$16.90 to 17.10
No. 1 foundry	16.00 to 16.50
No. 2 foundry	15.75 to 16.00
No. 3 foundry	15.50 to 15.75
No. 2 southern	16.35
Gray forge	14.50 to 15.00
Lake Superior charcoal	19.50 to 20.00

Coke.—The coke market for both furnace and foundry grades is inactive, and high grade Connellsville foundry coke is selling on a basis of $2.25 at the ovens and furnace at $1.75 to $1.90.

Finished Material.—Additional contracts for steel bars continue to be made by consumers throughout this district who have been given the option of closing for their requirements to July 1, next year, on the present basis. When the recent concessions on finished materials were announced it was understood by the trade generally that these quotations would apply to tonnage for delivery to Oct. 1 only. Nevertheless, it has developed that steel bar consumers are to be given the privilege to closing for their year's requirements. Practically all of the old contracts on which there was undelivered tonnage have been rewritten and include additional tonnage to cover requirements during the next 12 months. Bids will shortly be asked for the delivery of 1,000 tons of structural material for the new Bailey building, while the contracts for the Sterling & Welch building, amounting to 1,400 tons of structurals and reinforced concrete bars, has not yet been placed. A number of contracts for chain rods have been closed within the past few days by Ohio chain makers to cover their requirements for the next three months.

Old Material. — The market, contrary to expectations, is fairly strong, especially in steel. Two good sized railroad lists closed last week at higher prices. An advance of 50 cents a ton all along the line of rerolling material has been marked up. Dealers seem to be the most concerned in the market, actual consumers being in the background so far as present day mill activities reveal. We change our quotations in the light of the past week's advance to these figures, f. o. b. Cleveland:

Old iron rails	$15.50 to 16.00
Old steel rails (re-rolling)	13.50 to 14.00
Old steel rails (under 6 ft.)	13.50 to 14.00
Old car wheels	13.50 to 13.75
Old steel boiler plate	11.50 to 12.00
Steel axles	17.00 to 18.00
Malleable iron (railroad)	12.50 to 13.00
Malleable iron (agricultural)	10.50 to 11.00
Heavy steel	13.00 to 13.50
Country mixed steel	11.50 to 12.00
Low phosphorus	15.50 to 16.50

We quote, net tons, as follows:

No. 1 R. R. wrought	12.50 to 13.00
No. 1 busheling	11.00 to 12.00
No. 1 machine cast	12.00 to 13.00
Iron axles	17.00 to 18.00
Axle turnings	9.00 to 9.50
Machine shop turnings	6.50 to 7.00
Grate bars	9.00 to 10.00
Pipes and flues	10.00 to 10.50
Tank iron	10.00 to 10.25
Hoop and band iron	6.50 to 7.50
Sheet iron	4.25 to 5.25
Wrought drillings	6.50 to 7.00
Stove plate	10.50 to 11.00
Cast borings	5.50 to 6.00

The Colonial Iron Co., Ridlesburg, Pa., blew in its Colonial stack June 12. It had been banked since Feb. 16.

NEW YORK.

Large Tonnage of Pig Iron Purchased by Leading Pump Interest.

Room 1005, No. 90 West St., July 7.
Office of THE IRON TRADE REVIEW,

Pig Iron.—With the exception of important buying by the leading pump interest and the purchase of a moderate tonnage for the New England plant of a large electrical concern, the eastern market during the past week has been extremely quiet. The early part of July is being generally observed by foundries as inventory and repair time, with the result that the current melt is very low, and indications are that there will be no appreciable increase during the hot period, as the warm, humid weather has been playing havoc with foundry operations. Some few melters are really busy and are running full time, but these are still the exception. While details of the pump purchase are not obtainable, it is known that this interest has purchased about 20,000 tons within the last three weeks. This includes the 7,500 tons for the Buffalo plant, making the tonnage closed this week close to 12,000 tons, with some 6,000 tons yet to be purchased. Most of the recent order went to a New Jersey interest at a very low figure, but the most interesting feature of the transaction is the purchaser's statement that deliveries are to extend over the next nine months. Furthermore, it is stated that practically all of the business taken is covered by orders already booked. July starts with a light inquiry. Prices are generally firm, though two or three interests are eager for business and are making low figures. We quote tidewater delivery, third quarter, as follows:

Northern foundry No. 1	$16.50 to 17.00
No. 2X foundry	16.00 to 16.50
No. 2 plain	15.50 to 16.00
No. 2 southern foundry	16.00 to 16.50
Malleable	17.50 to 18.00
Basic	15.00 to 15.50
Gray forge	15.25 to 15.75

Ferro-Alloys.—Moderate sales of ferro-manganese at $44 to $44.50, seaboard, are reported, as well as limited transactions in ferro-silicon at $70 for 50 per cent. Ground 80 per cent ferro-manganese, delivered at eastern points, is quoted as follows: 100 pounds, 6c; 200 pounds, 4½c; 500 pounds, 4¼c; 1,000 pounds, 4c; 2,000 pounds, 3¾c. Silico-spiegel (10 to 12 per cent) is quotable at $38, seaboard, and silico-manganese at $90. Spiegel-eisen is selling at about $31.

Finished Materials.—In this district the past week has developed no structural lettings of importance and has, in fact, proved one of the most quiet periods of the year. Within the next month or so, however, figures will go in on the Municipal Office building, for which some 17,000 tons will be required. About 5,000 tons will also be needed for another hotel project on which estimates are now being made. Rush bids have been asked on the St. Lawrence river bridge over the Cornwall canal at Cornwall, Ont., to replace the Ottawa & New York railway bridge recently wrecked. Steel mills generally report an improvement in orders and specifications during the past two weeks, although railroad purchases have not materially increased. The Steel Corporation plants are now operating slightly in excess of 50 per cent capacity, having made considerable improvement of late despite the hot weather difficulties. In finished lines the feeling is generally very good. Cast iron pipe inquiries are more numerous and prospective business is better. New York City will award contracts Wednesday for 700 tons of 6, 12 and 20-inch pipe. A sale of 600 tons of billets is reported at full prices, this being half the original inquiry. For export a small tonnage of steel bars sold recently at 1.35c, tidewater. Bar iron is going at about 1.40c, New York.

In other lines little change is noted, and we quote: Angles, 3 to 6 inches x ¼-inch and heavier, 1.76c; beams, 3 to 15 inches, 1.76c; tees, 3 x ¼-inch and heavier, 1.81c; plates, carloads, tanks, 1.76c; marine boilers, 2.16c; bar iron, 1.41c; soft steel bars, 1.56c; sheets, No. 28, black, 2.66c.

Old Material.—The market is in such condition that even a moderate inquiry in almost any line has the effect of advancing prices. Heavy steel, wrought pipe and stove plate are all slightly higher and there is some demand for very clean machinery scrap, but the supply is not large and consumers are unwilling to pay the prices asked. No large transactions are reported. We quote, gross tons, New York delivery, as follows:

Old iron rails	$14.00 to 14.50
Old steel rails, re-rolling	14.00 to 14.50
Relaying rails	20.00 to 21.00
Old car wheels	12.00 to 12.50
Old iron car axles	16.00 to 16.50
Old steel car axles	15.00 to 15.50
Heavy melting steel	11.00 to 11.50
No. 1 railroad wrought	13.50 to 14.00
Iron track scrap	12.00 to 12.50
Wrought pipe	9.50 to 10.00
Cast borings	6.00 to 6.50
Wrought turnings	7.50 to 8.00
Heavy cast scrap	12.50 to 13.00
Railroad malleable	9.00 to 9.50
Stove plate	9.50 to 10.00
Grate bars	9.50 to 10.00

CINCINNATI.

Lower Quotations on Southern Iron.—Demand Limited.

Office of THE IRON TRADE REVIEW,
First National Bank Bldg., July 7.

Pig Iron.—Sales of iron in the territory continue light and the market remains dull. Some of the inquiry in the market a week ago is still pending and aside from the purchase of about 11,000 tons in Chicago territory by an agricultural implement manufacturer, no large transactions have been reported. There are inquiries under consideration for 500 tons of No. 2 southern and 500 tons of northern, another melter is in the market for 1,000 tons of low phosphorus iron. Inquiry for basic is fair and one lot of 3,000 tons for last quarter delivery is under negotiation and another buyer wants 500 tons for prompt shipment. There are several inquiries for malleable among which is a call for 1,500 tons for deliveries commencing at once and extending to July, 1909. While but little is being done in the way of sales of southern iron, the market is apparently easier and $11.50 Birmingham can be done for southern No. 2 foundry. This quotation is carefully guarded, however, and it is probable that it would take a fair tonnage to bring it out, as the smaller transactions which constitute the bulk of the business continue to be made at $12 and some furnaces are still unwilling to open their books for $12 business for last half delivery. For northern iron $15 for No. 2 foundry at furnace is apparently maintained, with some producers still refusing to sell below $15.50. It appears that the dullness has influenced some southern producers and possibly some holders of investment iron to express willingness to do business at $11.50 Birmingham although the attitude of most southern producers seems to be that of indifference and buyers seem equally content to await developments. Gray forge and No. 4 continue scarce and firm. High silicon iron is reported to be weak at $18.50, for 8 per cent, Jackson County furnace. We quote for prompt delivery and third quarter, delivered Cincinnati, based on freight rates of $3.25 from Birmingham and $1.20 from Ironton as follows:

	PER TON
Southern foundry No. 1	$15.25 to 15.75
Southern foundry No. 2	14.75 to 15.25
Southern foundry No. 3	14.25 to 14.75
Southern foundry No. 3	14.00 to 14.25
Southern No. 1 soft	15.25 to 15.75
Southern No. 2 soft	14.75 to 15.25
Southern gray forge	13.75 to 14.00
Northern No. 1 foundry	16.70 to 17.20
Northern No. 2 foundry	16.20 to 16.70
Northern No. 3 foundry	15.70 to 16.20
Northern 8 per cent silicon	19.70

Finished Material.—The market has been quiet, with only moderate specifications on contracts and but little demand in a jobbing way. Small orders are filled here out of stock at the following quotations:

Iron and steel bars, 1.85c to 2c, full extras. Angles, 3 x 3 and over, 2.10c to 2.25c; beams and channels, 15 inches and under, 2.10c to 2.25c; small angles and architectural channels, 2c base; plates, ¼-inch and heavier, 2c; 3/16-inch, 2.10c; No. 8, 2.15c; sheets, blue annealed, No. 10, 2.15c to 2.25c; No. 12, 2.20c to 2.30c; No. 14, 2.25c to 2.35c; No. 16, 2.35c to 2.45c; box annealed

sheets, Nos. 18 and 20, 2.55c to 2.65c; Nos. 22 and 24, 2.65c to 2.75c; Nos. 25 and 26, 2.70c to 2.80c; No. 27, 2.75c to 2.85c, and No. 28, 2.85c to 2.95c; boiler tubes, 2¼ to 5 inches, 62 per cent off base; turnbuckles, 45 per cent off; rivets, 3c base; cold rolled shafting, 47 to 50 per cent off list; steel tire, 2.05c to 2.10c base.

Coke.—The situation is without change and ovens are apparently maintaining prices at which they are willing to accept business for extended deliveries; in fact some of the operators have given notice of slight advances. Spot coke is in ample supply and obtainable at prices under the contract basis. There is not much inquiry pending. Contract prices in the leading coke producing districts are as follows:

	PER TON
Wise county furnace coke	$1.60 to 1.85
Wise county foundry coke	2.10 to 2.25
Pocahontas furnace coke	1.75 to 1.85
Pocahontas foundry coke	2.00 to 2.25
Standard Connellsville foundry coke	1.85 to 2.00
Standard Connellsville foundry coke	2.25 to 2.40
Connellsville district furnace coke.	1.60 to 1.80
Connellsville district foundry coke.	2.00 to 2.25

Old Material. — There is but little interest in the market and prices remain without quotable change. Dealers are carrying liberal stocks, and report light demand. Dealers' prices to consumers are as follows:

Old No. 1 R. R. wrought, net tons	$11.00 to 12.00
Cast machine and fdy., net tons.	12.00 to 12.50
Old iron rails, gross tons	13.50 to 14.00
Old steel rails (re-rolling) gross tons	12.75 to 13.25
Old short lengths, gross tons	12.00 to 12.50
Old iron axles, net tons	15.50 to 16.50
Heavy melting scrap, gross tons..	12.00 to 12.50
Stove plate, net tons	9.50 to 10.50
Wrought turnings	5.00 to 6.00
Cast borings, net tons	4.00 to 4.50
Car wheels, gross tons	13.00 to 14.00

BUFFALO.

Quiet Conditions Prevail in Raw and Finished Products.

Office of THE IRON TRADE REVIEW, 932 Ellicott Square, July 7.

Pig Iron.—The market opened quietly this week and very dull conditions were reported from all quarters, there being only occasional inquiries and the sales made were of small tonnage. The beginning of the last half was not expected to bring a strong market and it is pretty generally conceded that a quiet market will rule for a time. Furnace men, however, predict better business before long and they are not changing quotations to meet the dull conditions.

It was stated upon good authority that the tonnage on hand could be placed readily if the prices were cut. So far as could be learned there is no reduction planned at present. A firmer tone is looked for later on. Quotations have remained unchanged. We quote, f. o. b. Buffalo, as follows:

No. 1X foundry	$16.50 to 17.00
No. 2X foundry	16.00 to 16.50
No. 2 plain	15.50 to 16.00
No. 3 foundry	15.00 to 15.50
Malleable Bessemer	16.00 to 17.30
Gray forge	15.00 to 15.50
Charcoal	20.25 to 20.75

Finished Materials.—Buyers are not active. The week opened with less than the usual demand, probably due to the fact that Saturday was a holiday and purchasers are away on pleasure trips. Some activity is predicted for finished products within the next two weeks.

ST. LOUIS.

Large Tonnage of Steel Required for New Library.

July 6.

Pig Iron.—Last week was very quiet in the St. Louis territory as regards new orders for pig iron, but prices remained stationary. The furnaces are fairly well supplied with orders covering their estimated production for the next 30 to 60 days and feel confident that within a short time prices will show a tendency to advance.

Quite a number of foundrymen have to buy to cover their needs during the third and last quarter and when they come into the market it will have a strengthening effect.

The largest single order placed last week was for about 300 tons of No. 1 and No. 2 at $12, Birmingham basis. Inquiries are out aggregating from 800 to 900 tons for shipment during the third and last quarter.

Our quotations delivered, to which the freight of $3.75 from Birmingham has been added, follow:

No. 1 southern	$16.25 to 16.75
No. 2 southern	15.75 to 16.25
No. 3 southern	15.25 to 15.75
No. 4 southern	14.75 to 15.25

Coke.—The coke situation practically was unchanged during the week as regards prices, but there was a slight increase in the demand. Quotations are firm at $2.15 to $2.25 for best selected 72-hour Connellsville foundry coke, f. o. b. ovens, for contract and spot deliveries. The best selected 48-hour Connellsville furnace coke continues to be quoted at $1.75 to $1.90 at the ovens, with little demand for that grade.

Virginia and West Virginia coke was unchanged in price for the previous week. The freight rate on coke is $2.80 to East St. Louis and $2.90 to St. Louis.

Finished Material.—Five St. Louis and three New York contractors will submit bids for the proposed new $1,000,000 Central Library building on Olive street between Thirteenth and Fourteenth streets, which will be opened by the library board, Aug. 18, when the contract will be awarded.

No doubt is entertained in well informed quarters in St. Louis that the railroads will enter the market as purchasers of steel on a large scale not later than next year. For almost 12 months the roads have been retrenching on rail as well as other steel purchases. When steel rail buying does set in, therefore, it is expected to reach large proportions.

The season for steel rail buying is about over, but manufacturers believe that the railroads, in order to insure prompt deliveries, will enter the market for rails for delivery in 1909 in the last quarter of this year.

Old Material.—Our quotations remain as follows:

Cast iron borings, free from foreign material, net ton	$ 4.50
Steel axle turnings, net ton	8.00
Steel railroad axles, net ton	13.50 to 14.00
Iron railroad axles, net ton	15.50
Miscellaneous steel scrap, gross ton	9.75
Old car wheels, gross ton	14.00 to 14.50
No. 1 railroad cast scrap, net ton	10.50
Heavy machinery cast, net ton	11.50
Stove plate and light cast, net ton	9.00
Sheet iron, net ton, uncut	3.00
No. 1 railroad wrought, net ton..	10.00 to 10.50
Railroad malleable, net ton	11.00
Heavy melting steel, net ton	10.00

PHILADELPHIA.

Sales of Pig Iron Limited to Small Lots for Early Delivery.

Office of THE IRON TRADE REVIEW, 408 Central Trust Bldg., July 7.

Pig Iron.—The first week in July is proverbially a dull one in the iron business, and this year it is proving no exception. Indeed the usual quiet has been rather aggravated by a prolonged hot wave, which has affected almost the entire east. Under such circumstances, with many foundries closed for inventories and repairs and a general exodus from the cities of all who can get away, it is not surprising that there are no very large orders and no large aggregate of business to report. At least one order of 1,000 tons was placed, and there has been a satisfactory volume of small and moderate-sized orders, but the total amount is less than the average for the last few weeks. The pipe founders, who are operating up to about 80 per cent of their capacity, have pretty well cleaned up the northern markets of the irons suitable for their purposes, and are reported to have made some considerable purchases of southern iron. The general feeling is one of quiet confidence in the future. As consumption now exceeds production, and orders can only be filled by drawing on the steadily diminishing stock piles, there is little excuse for cutting prices, and these are held very firmly on the basis which has prevailed for some time. They show substantially no change, as follows:

No. 1X foundry	$17.00 to 17.50
No. 2X foundry	16.50 to 17.00
No. 2 plain	16.00 to 16.50
Standard gray forge	15.25 to 15.50

Basic	15.25 to 15.50
Low phosphorus	21.00 to 21.50
No. 2 Birmingham	16.00 to 16.50

New Material.—The revival of trade in Pittsburg, reported with so much flourish by the newspapers, finds no counterpart in this territory. While there is undoubtedly a slight steady improvement, particularly just now in plates and iron bars, the mills are still running at hardly half capacity, and no marked change is looked for during July. As yet the reductions in prices have failed to bring out any large orders for structural material for railroad work or building construction. Prices remain unchanged as follows:

Structural material, 1.75c to 1.90c, according to specifications; steel plates, 1.75c to 1.80c; refined iron, 1.30c to 1.35c; steel bars, 1.50c to 1.55c.

Old Material.—There seems to be a slight improvement in buying, which is reflected in higher prices in several lines. It is confidently expected that the next three or four weeks will witness a material change for the better. Prices follow:

No. 2 Virginia	16.75 to 17.25
Old steel rails	15.00 to 15.50
No. 1 steel scrap	13.50 to 14.00
Old steel axles	18.00 to 18.50
Old iron axles	20.00 to 20.50
Old iron rails	17.25 to 17.75
Old car wheels	14.00 to 14.50
Choice scrap R. R. No. 1 wrought	15.75 to 16.25
No. 1 yard scrap	14.00 to 14.50
Machinery scrap	14.00 to 14.50
Low phosphorus scrap	18.00 to 18.50
Wrought iron pipe	12.50 to 13.00
No. 1 forge fire scrap	12.00 to 12.50
No. 2 forge fire scrap, ordinary	9.00 to 10.00
Wrought turnings	10.00 to 10.50
Axle turnings, heavy	11.00 to 11.50
Cast borings	9.25 to 9.75
Stove plates	11.00 to 11.50

BIRMINGHAM, ALA.

Southern Iron and Steel Plants Resume Operations.

July 7.

Pig Iron.—Southern pig iron quotations are firm at $12 for No. 2 foundry. The demand is limited and practically no inquiry is being made. There is, however, a healthy outward movement of iron from this section and the stocks on hand are being slowly reduced. It is estimated that the production now in Alabama is about 70 per cent of the normal. Preparations are still being made to blow in other furnaces. The Woodward Iron Co. will continue manufacturing basic iron in one of its furnaces for some time, filling an order recently received.

The Tennessee Coal, Iron & Railroad Co. will have the Bessemer, Ala., rolling mills in full blast again before the end of this week. Three hundred men in all will be given employment in this plant. The foundry of the big cast iron pipe plant of the United States Cast Iron Pipe & Foundry Co. at Anniston has been started, and this is to be followed by other departments until the whole mill is in operation. This company has its Bessemer pipe plants in operation and is giving employment to a large number of men. It is understood that this concern has some large orders on hand.

BRITISH IRON MARKET.

Pig Iron Values Reduced in All Centers.

Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,
Birmingham, Eng., June 27.

There has been a marked falling off in pig iron during this week in all markets. For some reason Cleveland is holding its own better than other districts, but there has been a fall of 3d per ton in Cleveland iron, transactions being done yesterday at 50s 10½d ($12.45). Forward buying has entirely ceased for the present. The greater weakness of other markets has produced a curious development in Scotch purchases from Lincolnshire and Northampton. A definite reduction has been made in Lincolnshire iron of 2s per ton, making the present price for forge iron 44s 6d ($10.88), with foundry at 47s 6d ($11.62). These figures show a decline compared with a year ago of about 15s per ton. West coast makers of hematite have reduced their mixed numbers to 60s ($14.68) per ton, with warrants at 58s 10½d ($14.41). The great weakness of the midland market was admitted on all hands on Thursday, Northampton iron selling as low as 44s ($10.76), and Derbyshire 45s 6d ($11.14). Both quotations are about 1/6d below the quoted standard. The decline in Cleveland stocks since the beginning of the month has been 12,382 tons, and the present store of 50,370 tons is the lowest held since 1901. As a rule buyers are not to be tempted by concessions, however liberal, and there is consequently an increasing disposition to place the iron in stock rather than get rid of it at unprofitable prices. There are great complaints about the price of coal, which is determinedly kept up by combination, while coke, it is said, is quite 2s above the figure justified by the state of the market.

METAL MARKET

CHICAGO.

July 7.

Metals in this market during the week were inactive with sagging prices in lead and spelter. Transactions quoted are for carload lots. Less than carload lots are higher. We quote as follows:

Lake copper, 13½ to 14c; casting, 13¼c to 13½c; pig tin 31¼c to 32c; spelter, 4.85c to 5.00c; pig lead, desilvered, 4.50c to 4.65c in 50-ton lots; corroding, 4.65c to 4.75c in 50-ton lots; car lots, 2½c per 100 pounds higher; sheet zinc, 7c list, f. o. b. LaSalle, in car lots of 600-pound casks; Cookson's antimony, 11c to 11½c; other grades, 10c to 10½c.

The market prices for old metals are unchanged as compared with a week ago. A slight increase in the number of sales might be discovered, but the quantity moved is not noticeably increased.

Copper wire, 11c; heavy copper, 11c; light copper, 10c; heavy red brass, 10c; heavy yellow brass, 8¼c; light brass, 5½c; No. 1 red brass borings, 8c; No. 1 yellow brass borings, 7½c; brass clippings, 8c; tea lead, 3½c; lead scrap, 3¾c; zinc, 3c; tin pipe, 20c; tin foil, 16c; pewter, 3c; electrotype plates, free from wood, 14c; electrotype dross, 2¾c; stereotype plates, 4½c; stereotype dross, 3¼c; prime slab zinc, $55 per ton.

NEW YORK.

July 7.

Copper.—The situation is somewhat stronger, partly because of a more vigorous market abroad and partly because domestic consumers have been quick to take advantage of small concessions made by certain producers a week ago. Prices are again fairly firm at the following level: Lake, 12⅞c to 13c; electrolytic, 12⅝c to 12¾c; casting, 12½c to 12⅝c.

Pig Tin.—There is little activity either in home or foreign markets and prices are on about the same level as a week ago, 27¼c for spot, although certain interests are asking a slightly higher figure.

Pig Lead.—There has been considerable pressure to sell, chiefly by speculators who loaded up heavily some time ago, and the market is weak at 4.42½c to 4.47½c, New York.

Spelter.—The tendency is toward a weaker market, as transactions are extremely small. We quote, New York delivery, at 4.45c to 4.50c.

Antimony.—We quote: Cookson's, 8⅝c to 8¾c; Hallett's, 8¼c to 8½c; ordinary brands, 8c to 8¼c.

ST. LOUIS.

July 6.

Lead and Zinc.—A base price of $35.50 a ton was the highest for which zinc ore, 60 per cent, was settled for last week in the Joplin district. One sale was made for this week's delivery on a base of $36. As $35.50 was generally paid during the previous week, it is equal to an ad-

vance of 50 cents a ton in price. The demand for lead slumped at the close of the week and offerings were confined to $62 for the best grades, but some ore was shipped on a sale from the previous week at $66 a ton. Saturday being the Fourth of July, all of the mines were temporarily brought to a close Friday night, and the output was thus reduced about one-sixth.

ENCOURAGEMENT.

(Continued from first page.)

steel industry of this country will be prosperous.

"The necessities of the purchasing community are greater than ever before; and the ability to pay is greater than ever before. Of course, the latter part of the statement is subject to some modification. Many of the railroad companies are at present embarrassed by reason of the lack of funds, but these difficulties will surely, even though gradually, be overcome. Many of the railroad companies have already taken steps to finance their requirements, and all are beginning to realize that money is plentiful, and cheap and easy to obtain when first-class securities are offered.

"All that is requisite to bring about satisfactory business conditions is the restoration of perfect confidence, and that appears to be near at hand. In many lines of business there is no ground for complaint. In some departments of the agricultural implement trade, for instance, the sales per day are now the greatest in the history of the country. This shows to a demonstration two things: That the farmers, the great wealth producers of the country, have confidence in financial conditions, and that they are satisfied with crop prospects for the year.

"The basic conditions of the country are sound. First of all, the moral tone of the people has been elevated. Multitudes have been thoroughly converted to the doctrine of a 'square deal.' It would be useless for any of us to deny that we have been aroused to a keener appreciation of the old maxim that 'Honesty is the best policy.' Full credit will be given to President Roosevelt for the efforts he has made in raising the standard of business conduct. Possibly in the determination of some questions, or in the methods pursued by some of the members of the president's official family, mistakes have been made. If so, it is to be regretted, for it is most unfortunate that the innocent should suffer for the offences of others. But that the motive has always been right, and that the total result of the policies of the present administration will be of great and lasting benefit, is the general opinion of a grateful nation.

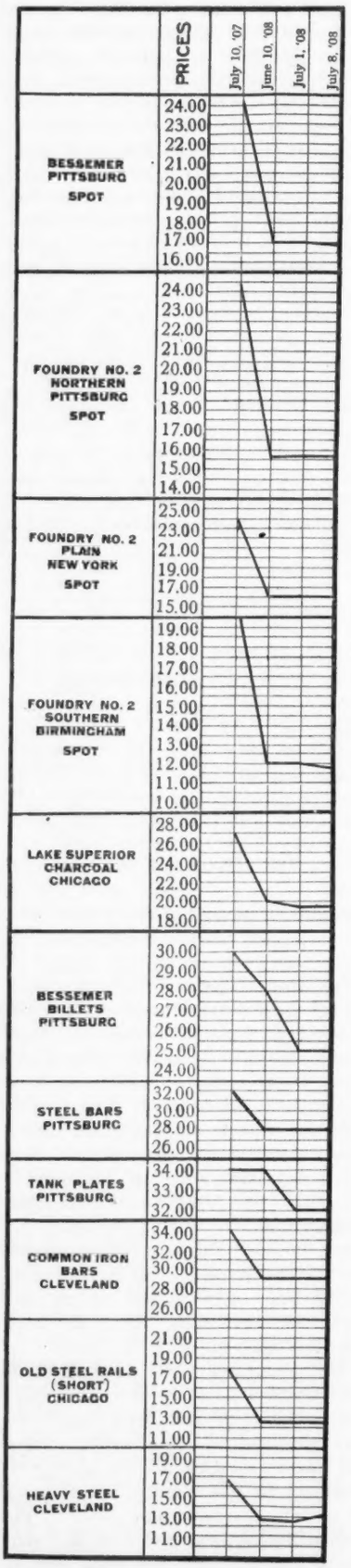
"Again, it is a day of conciliation and co-operation between competitors in business, principal and customer, the employer and the laborer, the government and the citizen, the public and the individual. The idea of co-operation prevails extensively, and is here to remain. We shall all be benefited by it.

"Then financial conditions are improved and improving. The legislation recently enacted is a step in the right direction. Next autumn will not witness a repetition of the scenes of October, 1907. There will probably be worked out a financial system which will provide funds for the expansion or contraction of the volume of business, and for the immediate wants of particular localities which result from the exigencies of the time and place.

"The nation is rich, and rapidly growing richer. It compares most favorably with all other nations. Its opportunities in the direction of material growth are greatest of them all. If one but glances at the figures relating to the increase in population, of additional value of production annually, of the value of property, and amount of money in the treasuries and the banks and in general circulation, one is amazed at the enlargement in resources and financial strength of the country. The wise are, even now, preparing to reap the benefit which will result from these conditions when the tide of business fully returns. We shall do business on a basis somewhat different and very much better than it has been done. We shall be more cautious, look farther ahead, keep more closely within the limits of our resources; but we shall have confidence in the future."

Steam Pump's Report.—The annual report of the International Steam Pump Co. for the year ending March 31, 1908, shows a total net income of $2,226,254, a decrease of $319,651. After deducting interest and depreciation, there was a balance for dividends of $1,223,545, a decrease of $303,579. Preferred dividends amounted to $859,800, leaving $363,745 to be added to surplus. However, various adjustments reduced the amount by $322,584, leaving a net addition to surplus of $41,162.

PRICE CHART.



SLIGHT DECREASE IN PIG IRON PRODUCTION

Our blast furnace production returns for the month of June show a total output of 1,134,335 tons, compared with the total production of May of 1,168,002 tons, a falling off in total production for June of 33,667 tons. However, the average daily production for the 30 days of June was 37,811 tons, a slightly higher average than the average daily production for the 31 days of May, which was 37,677 tons. In June the steel making iron averaged a daily production of 25,453 tons, an increase over the May average of 24,666 tons. In the average daily production the merchant output in June showed a slight falling off, being 11,758 tons, compared with 12,498 tons in May. In other words, the percentage of the total pig iron production possible to be made in June was 37.4, and showed a gain when compared with the percentage possible to be made in May, which was 36.1.

. The only states and groups of states which showed increases of production for June over May were Alabama, the Colorado-Indiana group, and the Texas-Missouri group. While in the Alabama the merchant production in June fell off 18,117 tons, yet the steel making production increased over 30,000 tons. Even the total production of spiegel and ferro throughout the country decreased in June, as compared with May.

A gain of nine operating stacks was made in June as compared with May, but a number of them were fired in the latter part of the month, and so failed to raise the total production appreciably. Four steel stacks were blown in during the month, and four blew out. On the other hand, 12 merchant stacks were fired and three blew out, making a net gain of nine. In merchant stacks, two were blown in in Alabama; one was destroyed in Ohio, reducing the number of stacks in that state to 61; one was blown out in Ohio and three were blown in; one was blown out in Virginia and three were blown in; one was blown in each in Wisconsin, Missouri, Texas and Tennessee. Of the steel making stacks, one was blown out in Ohio, two were blown out and four were blown in in Pennsylvania and one blown out in Colorado.

With the additional furnace production already under way in July, without taking into consideration new as well as repaired stacks which are announced for resumption this month, the total pig iron production in July promises to exceed that of May.

JUNE FURNACE REPORT.

STATES—	NO. OF STACKS.	NO. IN BLAST ON LAST DAY OF MONTH. JUNE	MAY	PERCENTAGE OF TOTAL POSSIBLE OUTPUT MADE.	AV. DAILY CAPACITY IN BLAST LAST DAY OF MONTH.	ACTUAL TONNAGE MADE. MERCHANT	NON-MERCHANT	TOTALS. JUNE	MAY
Pennsylvania	153	58	54	36.2	16,141.4	97,477	354,093	451,570	467,092
Ohio	61	24	26	38.2	6,736.8	51,728	142,464	194,192	225,444
Alabama	45	19	17	40.4	3,976.7	83,746	30,573	114,319	101,863
Virginia	24	10	8	32.2	1,024.0	23,768	———	23,768	25,526
New York	24	8	8	31.9	2,133.6	33,040	28,305	61,345	64,678
New Jersey	9	2	2	22.2	532.0	15,963	———	15,963	20,890
Illinois	24	14	14	58.3	4,734.8	7,275	130,454	137,729	149,141
Tennessee, West Virginia, Kentucky	18	7	6	29.3	951.3	21,772	5,204	26,976	30,337
Maryland, Wisconsin, Colorado, Indiana	4	2	2	52.9	2,105.6	8,732	72,498	81,230	55,264
Georgia, Texas, Minnesota, Michigan, Missouri	2	0	0	24.4	420.0	9,245	———	9,245	7,835
Spiegel—All states								12,669	14,431
Ferro—All states								5,329	5,501
Totals	395	154	145	37.4	39,419.0	352,746	763,591	1,134,335	1,168,002

BLAST FURNACE NOTES.

The Standard Iron Co. fired its Goodrich, Tenn., stack June 15.

The Fanny stack of the United Iron & Steel Co. blew in June 22.

The Emporium, Pa., furnace of the Emporium Iron Co., was fired June 18.

The Lackawanna Steel Co. blew out its No. 1 stack at Lackawanna, N. Y., June 10, for relining.

No. 2 Clifton stack of the Alabama Consolidated Coal & Iron Co. blew out June 20 for relining.

The Sam Lanham stack, Rusk, Tex., blew in June 24, after being cold about six months.

The Tennessee Coal, Iron & Railroad Co. blew in the Alice stack June 12, on basic iron; No. 4 Bessemer, June 7, on foundry iron; No. 1 Ensley, June 11; and No. 5 Ensley, June 14, on basic. Ensley No. 4, established a record on June 30, of 418 tons, the best previous record being 403 tons.

The Thomas Furnace Co., Milwaukee, announces definitely that the company's stack will resume operating in August.

The Northwestern Iron Co., Milwaukee, Wis., operating blast furnaces and iron mines at Mayville, Wis., has increased its capital stock from $500,000 to $1,000,000, all of which is to be taken by the present stockholders at par.

The Rome Furnace Co., Rome, Ga., will be blown in about Aug. 1, and will run on coke iron, making about 2,500 tons per month. The furnaces will be operated by Thomas J. Deane, and the brand will be known as "Silver Creek." Rogers, Brown & Co. are the sole agents.

The receivership of Milliken Bros., Inc., has been extended to Aug. 1. The showing made by the receivers, as of June 26, 1908, is regarded as excellent, considering the state of business conditions. Since March 31 the item of accounts payable has been slightly reduced, while cash on hand and accounts receivable were increased from $502,122 to $691,592. It is stated that orders now booked are sufficient to keep the bridge plant in operation for about two months.

The Federal Furnace Co., Chicago, pig iron manufacturer, advises that the recent increase in the capital stock was made to cover a part of its investment in the erection of a second stack at its South Chicago plant. This second stack has required practically doubling the buildings and equipment of the original plant, and in consequence, it is expected will double the company's output.

Receivers of the Atha Steel Casting Co., Newark, N. J., have been authorized to continue the business another 90 days. The report of the receivers showed that, under the management of L. A. Shepard, the plant has been operated at a profit.

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AN INCREASE IN ROLLED IRON AND STEEL.

The additional iron and steel statistics for 1907 just made public by the American Iron & Steel Association bring out some interesting facts. Early in the year the production of Bessemer and open-hearth steel ingots and castings was reported, showing a slight loss in 1907 as compared with 1906. To these statistics have since been added the statistics of steel production by the crucible and other processes, and a slight decline is still shown, but the statistics of rolled iron and steel, only now published, show an actual increase. The comparison is as follows, in gross tons:

	1906.	1907.
All steel ingots and castings	23,398,136	23,362,594
All rolled iron and steel	19,588,468	19,864,822

Here is a decrease of 35,542 tons in steel ingots and castings, but an increase of 276,354 tons in rolled iron and steel. It should be well understood that the statistics of steel production are really the records merely of the ingot scales. A large proportion of the steel which passes over the ingot scale does not become commercial steel, but scales off or is cropped off as a necessity in rolling or for the purpose of securing sound steel for the market. Most of the material thus temporarily lost goes into the open-hearth furnace and is weighed over again in the ingot form. The proportion varies for a multiplicity of reasons, so that the statistics of crude steel production are not a close guide.

It is not so with the statistics of rolled iron and steel. They represent commercial material, and the production is shown to have increased 275,000 tons from 1906 to 1907, despite the sharp falling off in outputs in the two closing months of the year. A portion of this tonnage is iron, while no statistics of crude iron, muck bar, etc., are gathered.

The statistics of wire rod production in 1907, just presented, show that the wire industry has easily made a new record. Wire rod production has been as follows, in gross tons:

1890.....	457,099
1895.....	791,130
1900.....	846,291
1905.....	1,808,688
1906.....	1,871,614
1907.....	2,017,583

The last three years have each shown record outputs in their turn, 1907 showing a gain of nearly 8 per cent. This is an excellent gain, seeing that the production of all rolled iron and steel was almost stationary from 1906 to 1907, but it is not a fact that the wire industry has been steadily gaining on the rest of the trade. Back in 1898 wire rod production first passed the million ton mark, with 1,071,683 tons to its credit, while in that year the total rolled iron and steel output was 8,513,370 tons. In the nine years since then wire rod production has fallen a trifle short of doubling, while the total of rolled iron and steel has much more than doubled, increasing to 19,864,822 tons in 1907.

Production of structural shapes decreased from 2,118,772 tons in 1906 to 1,940,352 tons in 1907, so that again the production of shapes is below that of wire rods. It was only in 1905 that the production of structural shapes exceeded that of wire rods. Of course, the production of structural material, including plates used for structural work, remains in the lead, as plates are being used more and more in structural work.

THE SHEET AND TIN PLATE WAGE SETTLEMENT.

The settlement of the sheet and tin plate wage scales at a single conference and on the basis reached is an evidence at once of the willingness of the United States Steel Corporation to pay good wages to its men and of the harmonious relations which exist between the manufacturers and the Amalgamated Association of Iron, Steel and Tin Workers.

There were good grounds, in a way, for a demand for a considerable reduction in the scale, arising from the fact that at a number of non-union mills scales of wages were in force which were much below the Amalgamated Association scale, the difference reaching an extreme of 18 per cent. The non-union mills are an important factor in the situation. Of the mills west of the Allegheny mountains, nearly a third are non-union in the case of tin plates, and more than half in the case of sheets. Of the American Sheet & Tin Plate Co.'s tin plate mills, 63 per cent are union, while of its sheet mills only 30 per cent are union.

While the scales were settled at a single conference, the conference was rather prolonged, lasting four days, besides an adjournment over Sunday. The negotiations were protracted partly because the men had gained the impression that no reduction at all would be asked, and partly because an entire change was made in the arrangement of the sheet scale, whereby the "day hands" were transferred to a tonnage basis. The actual reduction for the entire tin mill crew, on 30 gage, is 4.78 per cent, while the reduction in the sheet scale averages 1¾ per cent.

The change in the sheet scale from a part tonnage and part day rate basis to a straight tonnage basis is one

which has long been agitated, and had appeared attractive to both sides, but in past years difficulties stood in the way of making the change through the desire of the men to profit, in point of actual pay, by the change. At this year's conference there was more willingness than formerly to enter seriously into the matter, and the new sheet scale was arranged in a practical and very fair way. A period was taken, and the actual pay of the day hands was ascertained, with the tonnage they had turned out. From these data a tonnage scale was formulated which would have given the day hands exactly the same earnings. This method eliminated the necessity of figuring extras, in future, on certain orders, as these extras were included in the reckoning, and if orders run the same as formerly, as to width, the men will in the end receive their due proportion. After the transfer from a day to a tonnage rate had been made, the straight reduction of 1¼ per cent was computed.

The change to a straight tonnage basis will conduce to larger outputs and a better feeling among the men. Formerly the day hands were interested only in getting out the specified number of heats, while the other members of the crew were interested in tonnage. Now their interests are identical, as they should be when their work is in substance of the same character.

The number of men involved in these scale settlements is not as large as is sometimes supposed. The scales include only the skilled labor at the hot mills, including shearing. Pickling, cold rolling, annealing, tin house and common labor are not affected by these tonnage scales. In the tin mills each crew comprises a roller, catcher, heater, doubler and screwboy, a total of five men. Three of these men usually employ helpers, while there is one shearman to the three turns embraced in the 24 hours, making normally a total of 25 men to man a tin mill. There have been in actual operation lately 192 union tin mills, making a total of 4,800 tin mill workmen involved. The number of men engaged at the sheet mills is not so easily computed, on account of the employment of helpers at some mills and not at others, the number normally employed in the union sheet mills being slightly in excess of 3,000, making a total of about 8,000 men employed in the sheet and tin plate mills governed by these scales.

The new sheet scale shows at a glance the actual cost of rolling and shearing a ton of sheets. On 28 gage the scale total is $11.26 per gross ton, this covering the manipulations from the time the sheet bars are delivered beside the pair heating furnace until the packs are squared at the shear. That is almost exactly half a cent a pound. The wage cost per ton in the tin plate mills is considerably less, and this used to be a source of trouble. On account of the more convenient sizes in which tin plate is rolled the tonnage is greater in proportion to the skill and actual exertion involved, and the total tonnage wage cost on 30 gage, which makes 100-pound and 108-pound plates, is $9.76, or 43.57 cents per 100 pounds, this covering the labor cost from the heating furnace through the shearing, as in the case of the sheet mills.

JUNE ORE SHIPMENTS.

The ore shipments for June from upper lake ports amounted to 2,585,682 tons, a loss of 3,847,687 tons, compared with June, 1907. The increase over May, when only 285,315 tons were shipped is marked and the indications are that July will show a much greater tonnage than June. To July 1, the total shipments amount to only 2,870,997 tons, compared with 12,685,624 tons during the same period last year, a decrease of 9,814,627 tons. The shipments by ports were as follows:

	June, 1906.	June, 1907.	June, 1908.
Escanaba	814,664	809,876	254,496
Marquette	398,490	392,186	119,014
Ashland	556,701	554,168	250,449
Superior	885,588	1,217,729	345,845
Duluth	1,656,831	2,156,216	1,078,118
Two Harbors	1,176,982	1,303,194	537,760
Total	5,489,256	6,433,369	2,585,682
1908 decrease			3,847,687
	To July 1, 1906.	To July 1, 1907.	To July 1, 1908.
Escanaba	1,738,408	1,824,215	260,741
Marquette	802,887	769,059	119,014
Ashland	1,188,763	1,049,357	271,577
Superior	1,753,775	2,318,911	478,633
Duluth	3,181,235	4,094,046	1,164,809
Two Harbors	2,566,576	2,630,036	566,193
Total	11,241,596	12,685,630	2,870,997
1908 decrease			9,814,627

BRITISH TRADE DEPRESSED.

Pig Iron Makers Have About Decided to Blow Out Stacks.

Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,
Birmingham, Eng., June 27.

This week's meeting of the iron trade was the most depressed since the decline commenced. Buyers and sellers equally admitted the depth of the depression, and it was impossible to find any alleviating circumstance. A number of works recently closed, including the establishment of Isaac Jenks & Sons, Ltd., of the Staffordshire Works, Gretts Green, and one of the works belonging to Ebenezer Parkes. But it is significant that both of these are devoted to the production of sheets, and there is some reason to believe that this is a device adopted to keep up prices by restricting production. There is some mystery about the way in which the price of galvanized sheets is being maintained at £12 10s, a figure quite out of proportion to the prices of other materials. It is well known also that the galvanized sheet trade is very much depressed. Works stoppages are similarly affecting the Sheffield district. Usually they are taking the form of an extension of the stock taking period, but one or two large works are shutting down indefinitely.

A feature of the depression is that price concessions apparently do not tempt business, and many smelters have now decided either to blow out their furnaces or put their pig iron into stocks. A good deal of competition is being experienced in wire and small bars from Germany, and more steel is coming into the country from America and the continent, especially in the semi-manufactured form of billets and bars.

An ominous development of the depression is the news that some works not connected with the Wages Board have made independent arrangements with their work people to accept reductions. This is causing great indignation among the associated houses, and is likely to lead to further trouble. At Barrow the wire workers and hoop makers have accepted a 10 per cent reduction, and the Enginemen's and Cranemen's Society have similarly capitulated with a 7½ per cent reduction. This will increase the competition with the Midland district, which is under the Wages Board and sliding scale arrangements. So far from accepting reductions the men connected with the board are asking for a readjustment of the sliding scale.

OUR FOREIGN COMMERCE.

Big Decline in Iron and Steel Exports—Sheet Bar Exports Small—Cuban Iron Ore Imports Maintained.

Iron and steel exports in May showed the sharpest drop from the preceding month that has occurred in more than three years. As against a total of 93,522 gross tons in April, in May only 64,020 tons were exported, a decline of 31.5 per cent. From November to December, 1904, the greatest drop in recent years occurred, this being from 121,709 tons to 74,794 tons, or 38.5 per cent. From April to May, 1907, a drop occurred from 132,332 tons to 91,513 tons, or 30.8 per cent.

In the following table the May exports are compared with the previous months in the year and the average monthly exports in the four preceding years. The comparison is not carried farther back than 1904, because prior to that year the exports were relatively light.

		Gross tons.
Monthly average,	1904	97,309
	1905	84,188
	1906	110,478
	1907	108,544
January, 1908		102,630
February		81,755
March		96,437
April		93,522
May		64,020

The American iron and steel export trade is making an important chapter in history at this moment, and it is desirable to study the trends carefully. Two influences have been at work, for years past, in bringing about this export trade. One, the most commonly spoken of, has been the desire to dump surplus product, for the ulterior purpose of keeping down average cost of production and sustaining the domestic market, while the other has been the desire to build up an export trade for the profit directly involved in it. Sometimes one influence has been the predominant one, and sometimes the other. Years ago, when large tonnages of Alabama iron were exported, there was little profit involved, and the hope of the companies making them was that they could soon be discontinued. In later years the influence of the direct profits involved has in the main been the predominant one. Just at this time the two forces are striving, as there is great surplus capacity at home, while on the other hand the foreign demand has fallen off and there is keen competition between the countries which export purely for profit.

The trend has been very interesting. In 1904 there was insufficient home demand, and exports were pushed, with the result that they rose from 372,398 tons in 1902 and 326,590 tons in 1903, to the astonishing total of 1,167,170 tons in 1904. In a sense, that movement was largely dumping, since it was clearly brought about by the sudden lack of domestic demand. Then the character of the exports changed, since with an excellent domestic demand in the three following years the heavy exports were continued, the above table showing that while there was a slight decline in 1905, the two following years passed the 1904 record, yet there is no question that the domestic demand in those years was excellent. These exports were quite profitable, or they would not have been made. Now, however, comes the crucial test, with a great surplus of capacity at home, and much keener competition in the foreign markets. The domestic producers would like to increase exports further, but wish to maintain the trade on a profitable basis. What will be the result?

There has been an almost steady decline in the monthly exports this year, January falling a trifle below the average of either of the two preceding years, and succeeding months showing further decreases, until May exports are 41 per cent less than the monthly average of 1907, and are at an annual rate of 768,240 tons, against 1,302,525 tons actually exported in 1907.

Exports in Detail.

The decline in exports from April to May was almost uniform throughout the list, the most noteworthy being: Scrap, 1,000 tons; pig iron, 1,500 tons; rails, 10,000 tons; structural material, 9,000 tons; tin plates, 3,000 tons; wire, 1,500 tons; nails, 1,000 tons; pipes and fittings, 3,500 tons.

The drop in tin plate exports is exaggerated by the comparison between April and May. Effective May 1, the Canadian government put an "anti-dumping duty" on tin plate, whereby Canadian exports were shut off in May, but in April they had been abnormally swelled by the rushing through of shipments to avoid the duty. The monthly average of tin plate exports in 1907 was 950 gross tons; in April they were 5,095 tons, and in May they were 2,220 tons. These May exports were nearly 10 per cent greater than the exports in May of last year, so that the industry has done very well, with the Canadian business shut off.

The exports of crude steel, this line including billets and sheet bars, have

Imports, Gross Tons.

	—May—		Eleven months ending May	
	1907.	1908.	1907.	1908.
Scrap	3,071	.....	17,725	17,077
Pig iron	66,276	4,975	519,961	194,751
Billets, bars and steel, n. e. s.	1,462	818	17,617	15,401
Wire rods	1,774	630	16,304	12,461
Rails	23	7	3,947	2,633
Structural	171	51	9,096	1,470
Bar iron	3,034	300	34,278	31,645
Sheets and plates	164	152	3,188	2,381
Tin plates	7,874	6,642	59,749	55,180
Hoop, band or scroll	296	9	4,364	472
Totals	84,145	13,584	686,229	333,471

Exports, Gross Tons.

	—May—		Eleven months ending May	
	1907.	1908.	1907.	1908.
Scrap	5,815	1,840	20,207	18,527
Pig iron	7,342	3,621	79,043	47,612
Billets, sheet bars, etc.	7,305	3,831	110,116	87,310
Wire rods	552	401	9,573	6,072
Rails	11,726	11,440	272,964	263,108
Structural iron and steel	9,838	5,091	113,637	125,882
Bar iron	1,214	634	39,979	12,443
Steel bars	8,081	2,818	44,532	60,106
Iron sheets and plates	2,924	3,208	27,180	38,900
Steel sheets and plates	8,954	5,320	90,678	56,626
Tin plates	2,089	2,220	8,220	14,897
Hoop, band and scroll	195	170	5,467	8,285
Wire	10,848	12,077	149,514	146,545
Wire nails and spikes	3,075	1,640	36,352	34,282
Cut nails and spikes	653	588	7,206	5,953
All other, including tacks	279	238	5,930	5,283
Pipes and fittings	10,653	8,883	115,691	159,638
Totals	91,543	64,020	1,136,289	1,091,469

not been up to expectations, engendered by the reported sales last December of 100,000 tons of sheet bars for export to Great Britain in equal monthly deliveries over the first half of this year, or at the rate of 16,667 tons monthly. The exports of all crude steel, including the normal export trade, have been as follows, against a monthly average of 6,666 tons in 1907:

Crude Steel Exports.

	Gross tons.
January	5,317
February	21,744
March	23,444
April	3,822
May	3,831

Imports Declining.

Our imports have been declining, but have shown no important movement, since the cessation of the heavy pig iron imports. The total imports in 1907 were 662,358 tons, of which pig iron made up 489,440 tons. In the first five months of this year the average monthly importations have been 17,783 tons, of which only a relatively small part was pig iron, while the May total was 13,584 tons.

Our imports are really negligible. Of the May total of 13,584 tons, 4,975 tons was "pig iron," chiefly ferro-manganese and spiegel-eisen, which we do not ourselves produce in sufficient quantities, while tin plate amounted to 6,642 tons. Substantially all of this tin plate was imported for the manufacture of exported articles, chiefly containers for oil, foodstuffs, etc., on the exportation of which the government rebates 99 per cent of the duty originally paid on the tin plate. Excluding this manganiferous and other pig iron, and the duty free tin plate, there is left only 1,967 tons of iron and steel imports, at the rate of less than 25,000 tons a year.

Cuban Iron Ore.

While the total imports of iron ore have shown a marked falling off, the imports from Cuba have undergone but a slight decline. Cuban iron ore imports averaged 55,000 tons a month in 1907, and 48,000 tons a month in the first five months of this year, while the imports of iron ore from all countries averaged 102,000 tons a month in 1907, and 58,000 tons a month in the first five months of this year.

In 1907 our imports of iron ore from Cuba constituted 53.5 per cent if the total iron ore imports; in the first five months of this year the Cuban imports constituted 83.3 per cent of the total, there having come from Cuba 242,008 tons, and from all countries 290,415 tons.

Imports of iron ore have been as follows, in gross tons:

	From Cuba.	From all countries.
1905	539,935	845,651
1906	639,362	1,060,390
1907	657,133	1,229,168
January, 1908	47,450	57,659
February	52,951	80,094
March	48,990	52,729
April	48,057	48,153
May	44,560	51,780

These iron ore imports do not include manganese ore. While in government statistics "pig iron" includes ferro-manganese, "iron ore" does not include manganese ore, although it does include manganiferous iron ore. The difference arises from the fact that ferro-manganese, spiegel-eisen and ordinary pig iron all take a duty of $4 a ton, while iron ore, including manganiferous iron ore, is dutiable at 40 cents a ton and manganese ore is free of duty.

New Grinding Department.—Owing to the increased call upon it for completely finished valve stems and other similar work, the Electric Welding Products Co., Cleveland, has recently installed a grinding and finishing department, consisting of several Brown & Sharpe plain and universal grinders, special imported machines for spline milling or slot cutting, as well as centering machines. With the aid of this department the company is able to turn out a product completely finished in every detail. For example: A gas engine valve stem is ground on both seat and stem, slot, groove or thread is cut, or hole drilled and the end hardened, so that it is all ready to slip into an engine in the assembling room. Many of the large manufacturers are grinding their valve stems and many other parts to insure an accurate fit and wear.

Tool Makers Consolidate.—The Union Tool Co., Los Angeles, Cal., manufacturer of drilling and fishing tools, etc., advises that while its principal office is located at Oleum, Cal., its works is located and its business is transacted at Los Angeles. The company is a consolidation of the Union Oil Tool Co. and the American Engineering & Foundry Co. It plans to do a general foundry business, as well as manufacture oil well drilling tools and heavy mining machinery, gas engines, etc. It has purchased additional equipment and has erected two large buildings.

On June 24 the surplus of idle freight cars was 36,396 less than on June 10, and 100,307 below the record of April 29.

SCHOEN STEEL WHEEL CO. PURCHASED BY STEEL CORPORATION.

The plant of the Schoen Steel Wheel Co., located at McKees Rocks, near Pittsburg, has been purchased by the United States Steel Corporation and will be operated by the Carnegie Steel Co. In payment for this property the purchaser has assumed the guarantee of the Schoen company's issue of $1,300,000 first mortgage 5 per cent bonds, and in addition has given a cash sum, the amount of which is not stated. This plant was built in 1903 for the purpose of manufacturing a rolled steel wheel invented by Chas. T. Schoen, who first conceived the idea of the pressed steel freight car. The wheel is rolled from a steel blank, the web being pressed, and in price costs somewhat less than the steel tired wheel and is about twice as expensive as the cast iron car wheel. The plant contains ten heating furnaces and two special mills for rolling wheels, as well as ten large hydraulic forging presses. It has an annual capacity of nearly 200,000 wheels. At the present time four 35-ton basic open-hearth furnaces are being added and a blooming mill was to have been installed. The headquarters of the company are located in the Arcade building, Philadelphia, and its officers are as follows: Chas. T. Schoen, president; M. R. Jackson, vice president and general manager; M. W. Johnson, second vice president and manager of sales; Thomas G. D. Bell, treasurer; and Geo. T. Hildebrand, secretary.

The Ensley, Ala., plant of the Tennessee Coal, Iron & Railroad Co. broke all records in the United States for a 24 hours' run the middle of the last week in June. Six 65-ton open-hearth furnaces, operating duplex, and one 50-ton furnace, using half pig and half scrap, produced a total of 1,782 tons in 24 hours.

The Stonega Coke & Coal Co., Stonega, Va., recently fired up all of its idle coke ovens, which now run six days a week. The company's output had been 60 per cent of normal from Nov. 1, last year to June 1 this year.

B. Nicoll & Co., New York City, sales agents for the Wharton Steel Co., and other interests, have removed their offices to the Singer building, where the entire 28th floor of the tower is occupied.

Receivers of the Seaboard Air Line Co. have awarded the Maryland Steel Co. a contract for 12,000 tons of 75-pound steel rails. The purchase is in preparation for handling coal traffic from the Clinchfield mines.

NEW PRESIDENT FOR MERCHANT MARINE LEAGUE.

In furtherance of plans to wage a most aggressive campaign before the next session of congress for "the restoration to the high seas of the American flag," the Merchant Marine League of the United States has elected Joseph G. Butler Jr., of Youngstown, O., to its presidency. He will fill the vacancy created by the resignation of President Harvey D. Goulder, which was reluctantly accepted recently solely upon his insistence that his private business interests are demanding more of his time and

Jos. G. Butler Jr.

closest attention. However, Mr. Goulder has made it plain that his every possible endeavor will be exerted toward forwarding the patriotic purposes of the league.

President Butler is a widely known authority on pig iron. He is now and for years has been general manager of the Brier Hill Iron & Coal Co., pig iron manufacturers at Youngstown. When the Bessemer Pig Iron Association was formed, Mr. Butler was chosen its first chairman, and still occupies that position. When but a youth, he became connected with iron manufacture through Governor David Tod and John Stambaugh Sr., both now deceased.

Aggressive and active, a keen student both of men and affairs, Mr. Butler brings to the presidency of the Merchant Marine League the wealth of years of experience in public affairs and the results of close and long continued study. Keenly alert to note every good thing that makes for the future progress and prosperity of the country, Mr. Butler early became an enthusiast for the rehabilitation of the merchant marine of the United States. No sooner had the Merchant Marine League been organized in the city of Cleveland in November, 1904, that Mr. Butler became an active member. Since that time he has aided in its growth in every possible way, and has strengthened it in its purpose by his wide influence.

PERSONALS.

S. G. Schoomaker has resigned as a director of the American Locomotive Co.

Theodore B. Ewing, for 19 years connected with the Union Iron Works, has resigned and will undertake to recuperate his health at his home in Decatur, Ill.

Ralph Ditty, formerly secretary of the H. E. Mills Mfg. Co., Syracuse, N. Y., has accepted the management of the Federal Foundry Supply Co., Cleveland.

W. D. Sargent, of the Quincy-Manchester-Sargent Co., New York, has sailed for a two months' business and pleasure trip through Europe.

W. R. Elliott, formerly chief engineer of construction for the H. C. Frick Coke Co., has opened an office in Denver, Colo., for the purpose of carrying on a general engineering business for the equipment of coal and coke works.

W. G. Nichols, former assistant superintendent of the Taylor Iron & Steel Co., Highbridge, N. J., has accepted the position of superintendent of the manganese steel department at the Chicago Heights, Ill., works of the American Brake Shoe & Foundry Co.

The employes of the Philadelphia Roll & Machine Co., Philadelphia, surprised their general manager, August Marx, when they presented to him at the works at noon, July 2, a handsome leather club bag fitted complete, as a token of their esteem and appreciation, on the occasion of his trip abroad for a sojourn of a few months.

OBITUARY.

M. J. Urquhart died at his home in Steubenville, O. For many years he was connected with the old Jefferson Iron Works, at Steubenville, now the LaBelle Iron Works, and later he was president and general manager of the Laughlin and Junction Co., now a part of the Carnegie Steel Co., at Mingo Junction, O. He was a veteran of the civil war and leaves a widow and three children.

NEW SKELP WAGE SCALE TO BE CONSIDERED.

The Youngstown Iron & Steel Roofing Co., Youngstown, O., is the latest company to sign the scale for sheet and tin workers, recently agreed to by the American Sheet & Tin Plate Co. and the Amalgamated Association of Iron, Steel & Tin Workers. The Youngstown Sheet & Tube Co. has declined to sign the present skelp scale and as a consequence has done nothing with the new sheet scale. The matter of a new skelp scale is to be taken up at the conference between the Amalgamated association and the Western Bar Iron Association, now in session at Detroit.

IRONTON FURNACE PURCHASED.

(Special Telegram.)

Cincinnati, O., July 7.—Rogers, Brown & Co., who, a few weeks ago bought up the $100,000 bonds of the Union Steel & Iron Co., today bought the blast furnace at Ironton, O., under foreclosure of the mortgage for $30,000, two-thirds of the appraisement. This was one of the E. L. Harper properties.

Lake Superior Iron Ores.—The booklet issued annually by the Lake Superior Iron Ore Association, Rockefeller building, Cleveland, showing the complete average cargo analyses of Lake Superior iron ores has been compiled for the season of 1907. The edition is similar in appearance and arrangement to that issued last year, excepting the analyses of the following mines for the season of 1908 appear in this issue: Nimikon and Ottawa, manganese on the Gogebic range; Illinois, on the Baraboo range; Mary, Marquette range; Berkshire, Beta, Gamma, Groveland, Hollister, James, Waucedah and Youngs, Menominee range; Alberta, Athol, Bangor, Kellogg, Mariska, Midway, Mohawk, Nassau, Onandaga, Shenango, Syracuse, Webb and Wilpen, Mesabi range. Among the Canadian ores, the Moose Mountain, of the Sudbury district, is also included.

The United States bureau of navigation announces that this year 142 steel vessels, of 417,167 gross tons were built in this country, compared with 360,655 tons built last year. Steel steamers to the number of 75, of 304,379 gross tons, were built on the great lakes.

The union coal miners of Alabama have called a strike, only two small commercial coal companies having signed the wage contract offered by the miners at 55 cents a ton.

SHEET AND TIN PLATE WAGE SCALES.

The American Sheet & Tin Plate Co. has signed wage agreements with its union workmen for the year ending June 30, 1909. During the past week the company signed the scale with the International Tin Plate Workers' Protective Association, as well as with the Amalgamated Association of Iron, Steel and Tin Workers. The men represented by the protective association are those employed in the tinning plants outside of the rolling mills in the tin plate works.

The new scale on sheets and tin plate with the Amalgamated association has been worked out as to its application to the different classes of workmen.

Sheet Mill Scale.

It is agreed that when the actual average selling price of Nos. 26, 27 and 28 gage plain sheet steel, f. o. b. mill, is 2.50c per pound, the tonnage rate shall be as follows, with 2 per cent additional for each 10c advance per 100 pounds above said 2.50c selling price, and 2 per cent decline for each deduction of 10c per 100 pounds to said 2.50c selling price:

Per Ton 2,240 Lbs.

Gage.	Roller.	Sheet Heater and Helper.	Sh'rm'n.	Pair Heater.	Rougher.	Catcher.	Matcher.	Doubler.
8 & H	$0.903	$0.723	$0.412	$0.270	$0.350	$0.350	$0.248	$0.234
9-11	1.003	0.803	0.459	0.300	0.390	0.390	0.275	0.260
12-14	1.206	0.965	0.553	0.360	0.468	0.468	0.331	0.312
15-17	1.426	1.115	0.637	0.416	0.523	0.523	0.370	0.349
18-21	1.774	1.355	0.774	0.506	0.615	0.615	0.437	0.411
22-24	2.319	1.768	1.010	0.660	0.802	0.802	0.570	0.536
25-26	2.664	2.033	1.162	0.759	0.923	0.923	0.656	0.616
27	2.895	2.209	1.263	0.825	1.003	1.003	0.713	0.670
28	3.081	2.352	1.343	0.878	1.068	1.068	0.759	0.713
29	3.236	2.472	1.412	0.922	1.122	1.122	0.797	0.749
30	3.472	2.650	1.515	0.990	1.204	1.204	0.885	0.804
31	4.501	3.434	1.963	1.282	1.559	1.559	1.108	1.042
32	5.478	4.179	2.381	1.560	1.897	1.897	1.347	1.267

Tin Plate Scale.

When a box of 100 pounds coke tin plate is selling at $3.90, the scale of prices as appears below shall be paid. On each 10c increase in the price per box, 2 per cent advance on the prices below shall be paid, and on each 10c per box decrease, a deduction of 2 per cent shall be made to said base, but it is understood that the wage list below is the minimum for the year ending June 30, 1909:

Gage.	Roller.	Doubling.	Heating.	Catcher.	Shears.	Screwboy.
8 to 11	$1.32	$0.75	$0.80	$0.45	$0.32	$.054
12 and 13	1.38	0.77	0.84	0.48	0.32	0.54
14 and 15	1.60	0.89	1.01	0.55	0.32	0.54
16 and 17	2.13	1.22	1.25	0.73	0.32	0.54
18 to 20	2.39	1.36	1.39	0.82	0.32	0.54
21 to 24	2.87	1.69	1.66	0.90	0.39	0.65
25 and 26	3.04	1.78	1.82	0.96	0.39	0.71
27 and 28	3.07	1.87	1.87	0.96	0.40	0.72
29 and 30	3.22	2.12	2.20	1.10	0.40	0.72
31	3.30	2.25	2.35	1.12	0.40	0.73
32	3.45	2.36	2.47	1.18	0.42	0.75
33	3.67	2.48	2.54	1.24	0.45	0.77
34	4.08	2.65	2.78	1.37	0.47	0.80
35	4.27	2.79	2.95	1.45	0.49	0.83
36	4.56	2.87	3.07	1.54	0.51	0.83
37	4.62	2.90	3.11	1.56	0.53	0.83
38	4.66	2.96	3.16	1.58	0.54	0.83
39	4.92	3.25	3.39	1.66	0.55	0.83
40	5.18	3.68	3.96	1.75	0.57	0.83
41	5.32	3.86	4.15	1.79	0.58	0.83
42	5.46	4.03	4.34	1.83	0.59	0.83
43	5.58	4.21	4.53	1.88	0.60	0.83
44	5.72	4.39	4.71	1.93	0.61	0.83

The independent sheet and tin plate manufacturers are expected to sign the scale with the American Sheet & Tin Plate Co. without any further conferences. Among those who have already signed are Follansbee Bros. Co., Follansbee, W. Va.; the Empire Iron & Steel Co., Niles, O.; the Cleveland Hardware Co., Cleveland; and the Griffiths Charcoal Iron Mills, Washington, Pa.

Novel Furniture Building.—The General Fire Proofing Co., Youngstown, O., is planning to erect at once an additional factory building 60 x 200 feet. This building will be put to a novel use, and is evidence of the progress being made in finding a satisfactory substitute for timber, now so rapidly disappearing. It will be devoted to the manufacture of steel office furniture and filing devices, including steel sections, or units, desks and tables. This furniture is finished to so closely resemble oak and mahogany that the difference can not be detected by sight alone. Steel furniture possesses advantages over wood in that it is fireproof and space saving, and is indestructible through use.

The Dunlap-Connellsville Coke Co. this week began the manufacture of coke at its new plant at Garwood, Pa. The operation at the start is now confined to 25 ovens, but these will be increased later. J. K. Griffith, formerly with the Davidson plant of the H. C. Frick Coke Co., has been made superintendent of the new company.

NO GREAT RUSH

Of American Iron and Steel to Mexico—The New Tariff.

Mexico City, July 2.—The new tariff on iron and steel products into Mexico will become effective Aug. 16. It is a radical advance on the former schedule and in some cases will be prohibitive as far as competing with the material produced in the country is concerned where the home product is available. The Monterey Iron & Steel Co. is now the chief beneficiary by the new schedule, as this is the only plant in the republic that can produce the heavy steel goods. There are rather small stocks of iron and steel in the hands of the dealers and agents owing to the slackness in business which has prevailed in the country since the first of the year. So far, there is no evidence of the movement of any large quantity of material to the country in order to enter it in advance of the raise in the rates of customs, but it is understood that some of the strong concerns are in negotiation for stocks to be shipped in time. The government has in the past followed the policy of granting exemption from duties to railroads and new industrial enterprises and will no doubt continue it in the future.

The plant for the reduction and manufacture of iron ore from the Cerro de Mercado deposit at Durango is still closed because of litigation which has been pending for more than a year. It is announced that negotiations for the settlement of the difficulties are under way with a prospect of early adjustment and the resumption of the works at Durango.

The 400-ton blast furnace of the Monterey steel plant was blown in recently after several weeks of idleness. The plant is now running full capacity, employing about 1,500 men.

Explorations for coal in the south of Mexico, in the state of Oaxaca mainly, are being carried on by the representatives of a Philadelphia syndicate that has a concession for the iron deposits of that region which are of no present value unless coal can be developed in the same region. There is a fair prospect of developing commercial coal deposits in this section, for the existence of the coal measures has been proven, although the coal beds thus far exploited have been found to be very much broken and changed by the intense disturbance of the strata by volcanic and earthquake action recently and in the geological past. K. T.

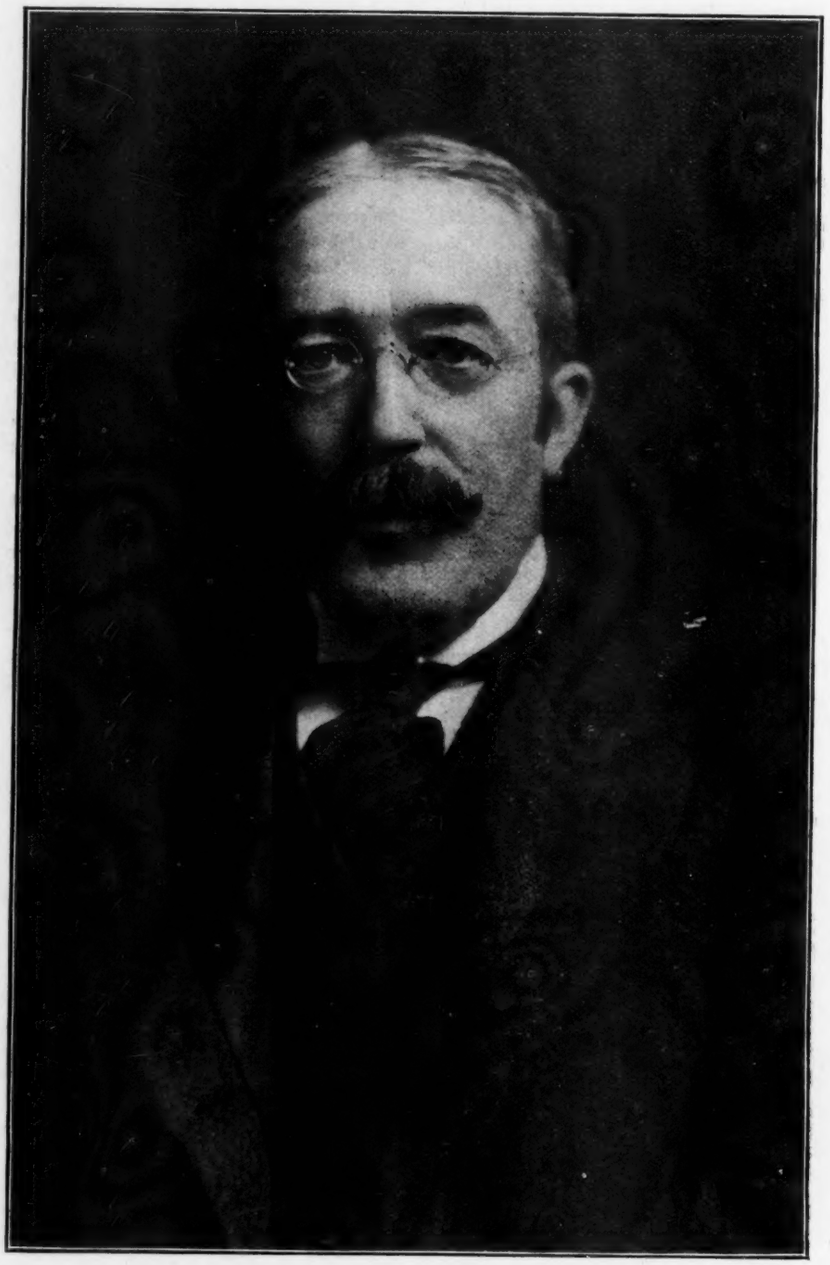
SAMUEL MATHER*

In seeking a Cleveland representative of the great iron ore and pig iron interests, which have been such an important factor in the industrial life of that city for many years, the organizers of the American Iron and Steel Institute naturally turned to Samuel Mather, who has long been the head of the firm of Pickands, Mather & Co., one of the most prominent interests connected with the development of the Lake Superior ranges. Mr. Mather's father, Samuel Livingston Mather, came to Cleveland in the early forties, and his attention was soon called to the iron mines in the vicinity of Ishpeming, Mich. He was one of the organizers of the Cleveland Iron Mining Co., which was incorporated in 1850, and was made treasurer. He was made president a few years later and served in that capacity until his death, in 1890. The son was prepared for entrance to Harvard, but in 1869, when 18 years old, went to Ishpeming to become acquainted with the iron mining methods, and by an explosion of dynamite at a mine, was very seriously injured, so that for a year or more he was incapacitated. He then concluded that on account of the loss of time due to the accident, he would not go to college, but would begin at once to familiarize himself with mining. This he did, spending several years at the mines near Ishpeming. In 1883 he formed a partnership with James Pickands, of Marquette, and Jay C. Morse, of Chicago, and the firm of Pickands, Mather & Co. was organized. Mr. Mather has since continued his connection with the firm. Mr. Pickands died in 1896. Mr. Mather is a director of the Lackawanna Steel Co., and the Youngstown Sheet & Tube Co. He has been actively identified with numerous philanthropic and educational organizations.

Pickands, Mather & Co. Properties.

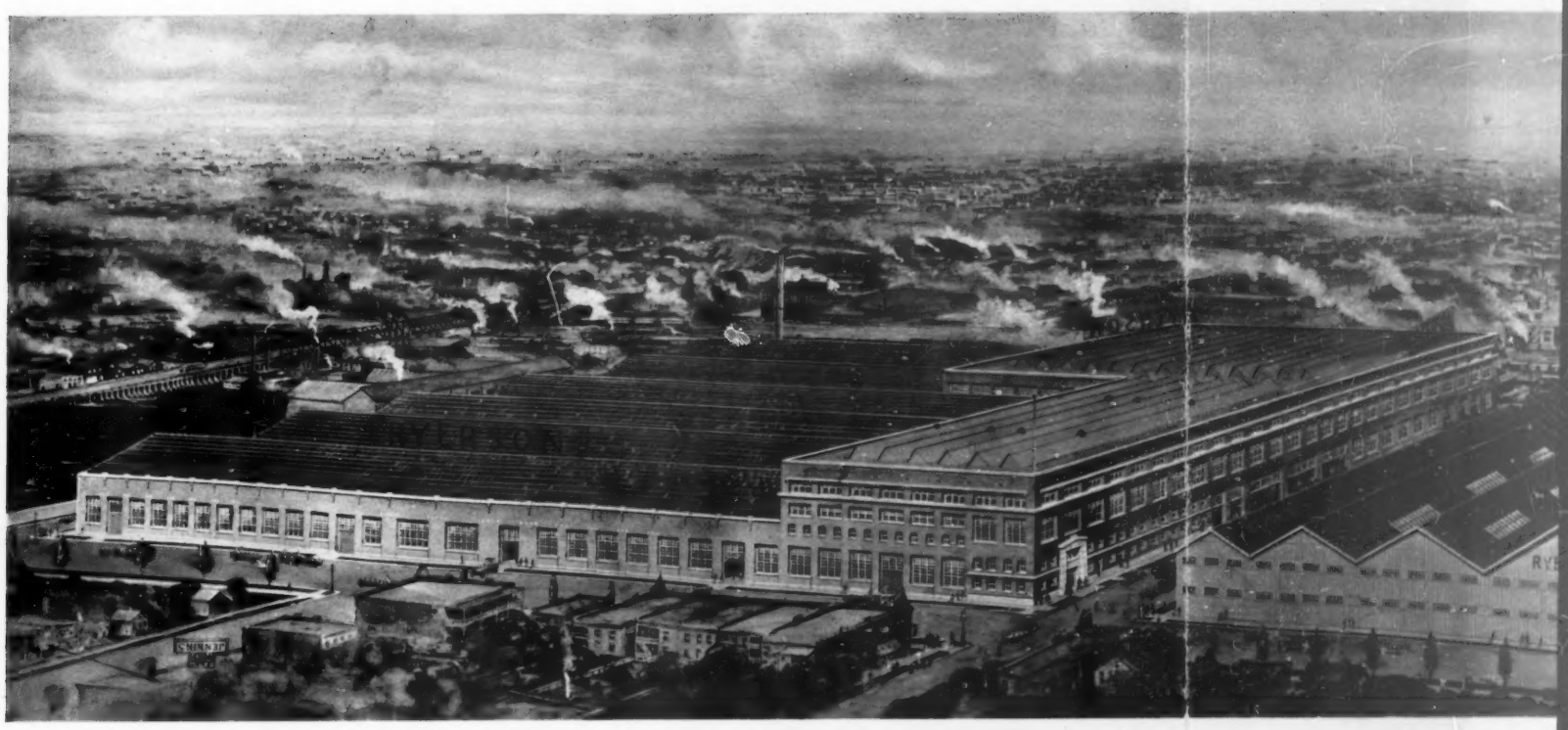
Mr. Mather is vice president of the Toledo Furnace Co., having two stacks with a total annual capacity of 265,000 tons. The firm owns the Ella furnace, at West Middlesex, Pa., which has an annual capacity of 80,000 tons. It has for many years been one of the most important interests operating in the Lake Superior region, and was one of the first of the large interests to acquire properties in the development days of the Marquette and Gogebic ranges. It now operates mines in all parts of the Lake Superior district, and ships a considerable part of its ore in vessels managed by it. At present the firm is interested in but one active Marquette range mine, the Imperial, but on the Mesabi range, it controls or is associated in the control of the Albany, Adriatic, Corsica, Cyprus, Elba, Malta, Minorca, Mohawk, Troy, Utica, Syracuse, Bangor and Yawkey and the idle Scranton. Some of these did not ship last year, and the exploratory work of the company embraces still other property. On the Gogebic range, Pickands, Mather & Co. control, or handle, the Cary group, Brotherton, Sunday Lake, Pike and Mikado mines. The accompanying view shows the Cary group at Hurley, looking west from the Windsor shaft toward the old Superior. On the Menominee range are a number of properties operated by this company, the most conspicuous being the group in the Stambaugh valley, including the

(Continued on page 89.)



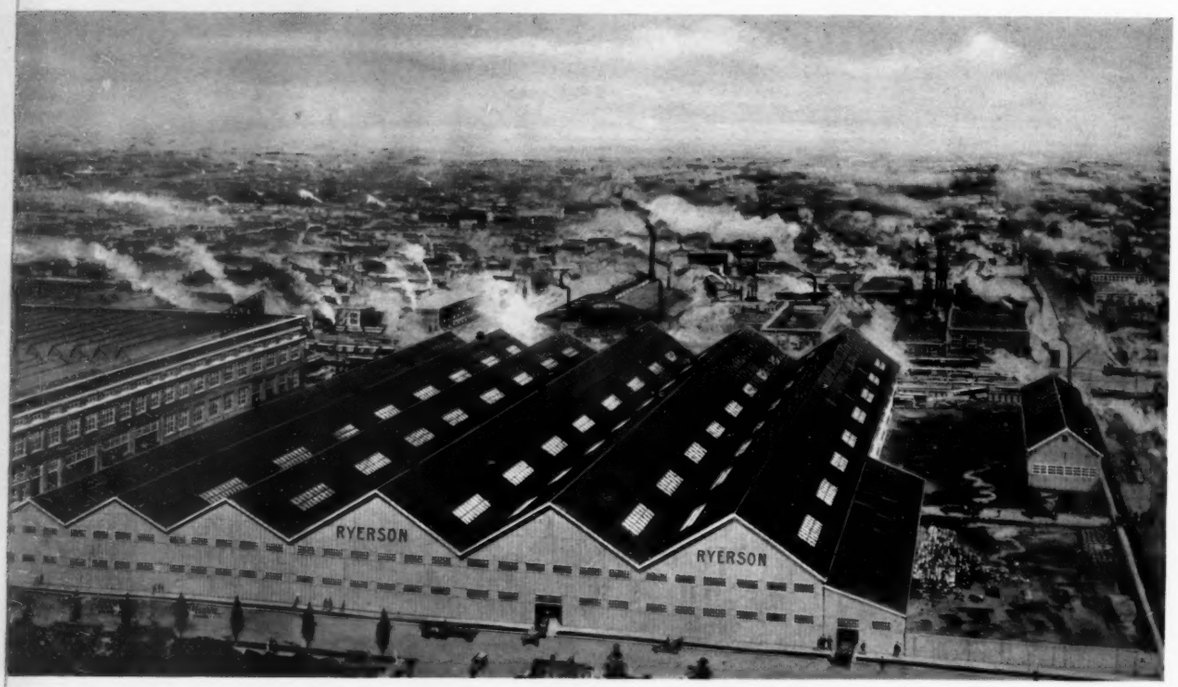
SAMUEL MATHER.

*Seventh of a series of brief biographical sketches of officers and directors of the American Iron and Steel Institute. The first of the series was Elbert H. Gary, April 16; the second, Willis L. King, April 23; the third, John A. Topping, May 7; the fourth, Wm. A. Rogers, May 14; the fifth, E. A. S. Clarke, May 21; and the sixth, Thos. J. Drummond, June 4.



THE NEW GENERAL OFFICES AND WAREHOUSES OF JOSEPH T. RYERSON &

INTERIOR VIEW OF SOUTH STRUCTURAL WAREHOUSE—JOSEPH T. RYE



OUSES OF JOSEPH T. RYERSON & SON, CHICAGO

WAREHOUSE—JOSEPH T. RYERSON & SON

THE NEW WAREHOUSE OF JOSEPH T. RYERSON & SON, CHICAGO

The announcement of the completion of the new warehouses of Jos. T. Ryerson & Son, Chicago, is interesting in view of the fact that they constitute one of the largest plants of this kind in the iron and steel industry of the world. However, the inspiration and necessity for building so immense a plant and the real significance of the extensive facilities provided, rather precede in importance to the iron and steel consuming trade, the matter of size, notwithstanding the great stride forward in that direction. The introduction to the trade of this tremendous and unique plant for the transaction of its diversified business, etablishes clearly as it may not have been under the previous conditions of more modest plant facilities and accustomed routine, that Jos. T. Ryerson & Son may no longer be considered handlers only of structural shapes, plates, sheets, bars and the ordinary iron and steel jobbers' stocks. Their trade in iron and steel mill products is now only one of several departments, each of which is of equal importance to the general business of the company. A trip through the new warehouses makes it apparent that this jobbing house will continue to extend in increasing degree those same natural advantages to apply to more than 1,000 different specialties and fittings, to a line of complete shop equipment for boiler and implement manufacturers, structural iron, sheet metal and the various other workers in finished iron and steel. To these will be added machine tools. Furthermore, it has equipped its warehouses with heavy machinery for supplementing the facilities of its customers, thus offering, in cases of emergency, not only a complete stock of materials, fittings and tools for immediate shipment, but the use of most modern machinery. This impressive fact stands out, that to this plant, the builder, the boilermaker, the implement manufacturer, the railroad and the general iron and steel buyer can come, and, in addition to making his principal purchase, can also supply all his accessory needs. To the development of the idea of supplying all of the consumer's requirements, may be attributed all that is unusual in this splendid plant.

FIG. 1—SOUTHEAST CORNER OF STRUCTURAL STEEL WAREHOUSE. END OF THE ROLLER TABLE SERVING ONE OF THE FRICTION SAWS IS SHOWN.

This great distributing depot, a department store for iron and steel, represents the growth of the firm of Jos. T. Ryerson & Son since its establishment in 1842. It represents 66 years of acquaintance with the special needs of iron and steel users, both large and small, and 66 years of expansion in the many directions to

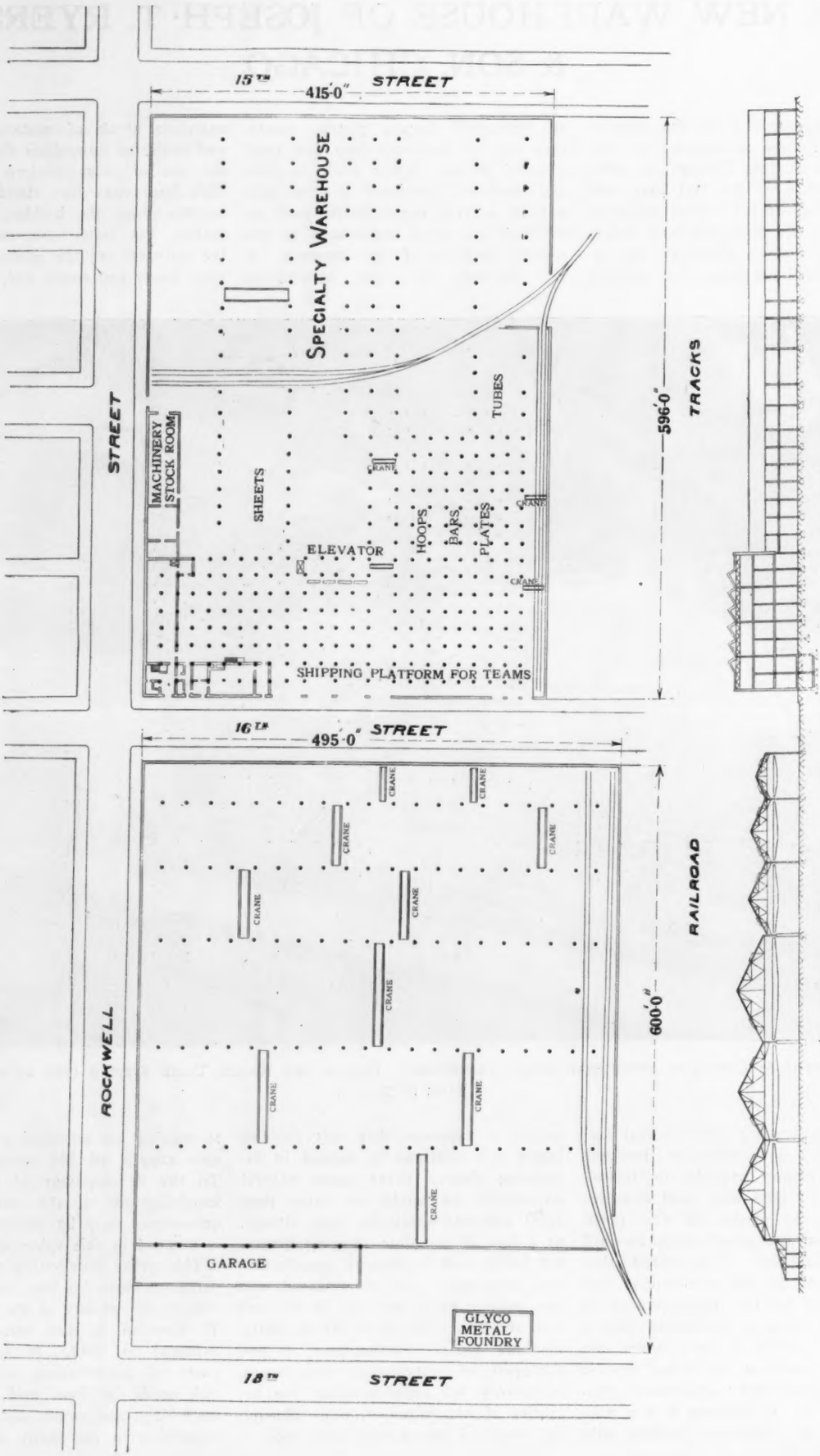


FIG. 2—PLAN OF NEW WAREHOUSES OF JOSEPH T. RYERSON & SON, CHICAGO.

meet these diversified requirements. After its organization this firm occupied small offices and stores on South Water street, and later moved to larger quarters at Lake, Clinton and Milwaukee avenues. The present plant had its inception in 1901, and its floor space amounts to 675,000 square feet, exclusive of the offices, and provides a stocking capacity of 150,000 tons, conservatively estimated. The two main buildings are separated by Sixteenth street as shown in the ground plan, Fig. 2, but are connected by means of a tunnel passing under the roadway. The two buildings are of practically equal ground area and both are of heavy though somewhat different steel construction. The ground flooring is built of heavy planking laid over beams imbedded in concrete. The upper floors are designed for a load of 700 pounds to the foot.

FIG. 3—A CORNER OF THE FLOOR FOR PLATE STORAGE. CHARACTER OF COLUMN AND FLOOR GIRDER STEEL CONSTRUCTION IS SHOWN.

The structural steel warehouse is a commodious building, about 500 feet square, arranged in six longitudinal bays. Of these bays the one used as the beam yard is 110 feet wide, the adjoining bay to the north is 75 feet wide, two others are 65 feet wide and the smallest are 45 feet wide. The building is enclosed, roof and sides, with corrugated iron. The roof trusses are of simple and uniform design and are carried on latticed steel columns. The general design of the steel work in this and the other buildings is shown in the cross sections accompanying the ground plan, Fig. 2. The columns carry crane runways in each bay and each runway is pro-

FIG. 4—NORTHEAST CORNER OF STRUCTURAL STEEL WAREHOUSE, SHOWING FRICTION SAW AND ANGLE SHEAR.

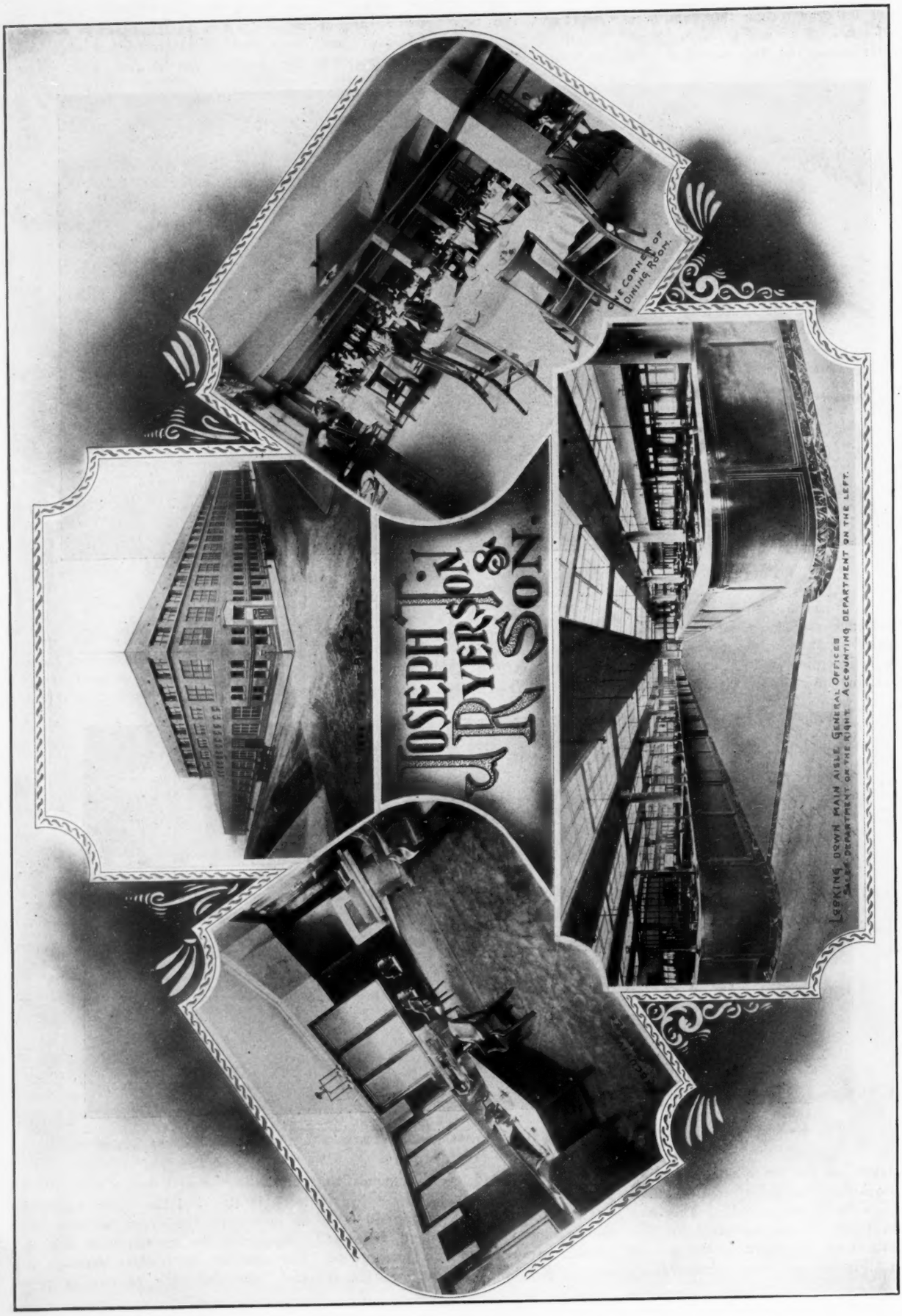

JOSEPH T. RYERSON & SON
ONE CORNER OF DINING ROOM.
LOOKING DOWN MAIN AISLE GENERAL OFFICES
SALES DEPARTMENT ON THE RIGHT. ACCOUNTING DEPARTMENT ON THE LEFT.

FIG. 5—VIEWS IN THE NEW OFFICES OF JOSEPH T. RYERSON & SON.

vided with two cranes, the cranes being built by the Case Mfg. Co., Columbus, O., and by Pawling & Harnischfeger, Milwaukee, Wis. The cranes of widest span have a trussed frame, as shown in Fig. 8, and are of 10 tons capacity. In the 75-foot bay the cranes have an I-beam runner hung from the bridge, the runner carrying two trolley hoists, each of five tons capacity. The cranes of smaller span in the remaining bays are of similar design and capacity. The handling of material is very rapid, the cranes having a speed along the runways of 350 feet per minute and a trolley speed across the crane bridge of 175 per minute. The clearance under the cranes is about 20 feet and with a normal volume of material in stock the trolleys just clear the piles

FIG. 6—AN AISLE OF THE BAR FLOOR.

of steel. By means of this system of cranes and with the added service of two wall jib cranes the entire floor of this warehouse is covered with ease and speed. Railroad tracks traverse the warehouse at the extreme east end of the building next to the wall and at right angles to the cranes. Cars on these tracks may be loaded and unloaded directly by the cranes in each of the bays. For team haulage a wagon driveway is provided parallel to these tracks with the same facilities for loading and unloading as is possible to the railroad. At other points in the building access may also be had with wagon and team.

All standard sizes of shapes are kept in stock, conveniently assorted, from the lightest to the heaviest sections. The equipment for preparing this structural material to conform with all varieties of consumers' specifications either regular or special, is very complete. It includes three Ryerson friction saws described in THE IRON TRADE REVIEW of April 16. These saws are of heavy construction and are capable of cutting a 24-inch, 100-pound I-beam section in from 13 to 20 seconds. Shapes coming to the saws are fed by motor-driven roller tables, shown in Fig. 1, which run transversely of the building so that material from any part of the floor may be brought to these tables by the cranes and fed to the saw. Heavy shearing and other tools for turning out the steel in just the form desired are located conveniently in various parts of the warehouse and, in short, facilities are provided for all of the buyers' requirements. One portion of the floor, centrally located, is reserved for the storing of short ends. Here parallel beams are set in the floor five feet apart. When the standard length shapes are cut the crop ends are piled on these beams and when a future order is filled which calls for some short pieces the stock of short ends is first inspected, and at a glance the approximate length of any piece in this stock can be seen from the beam spacing. Classifications of the various shapes are followed according to the section sizes. The small tools and repair parts are kept in an enclosed room centrally located in the warehouse.

The buildings last to be completed include the office building, on two floors of which are also stored sheets and rivets, the plate, bar and hoop

FIG. 7—AN AISLE OF THE FLOOR FOR THE STORAGE OF HIGH GRADE SHEET STEEL.

FIG. 8—VIEW DOWN ONE OF THE CENTER BAYS OF THE STRUCTURAL WAREHOUSE.

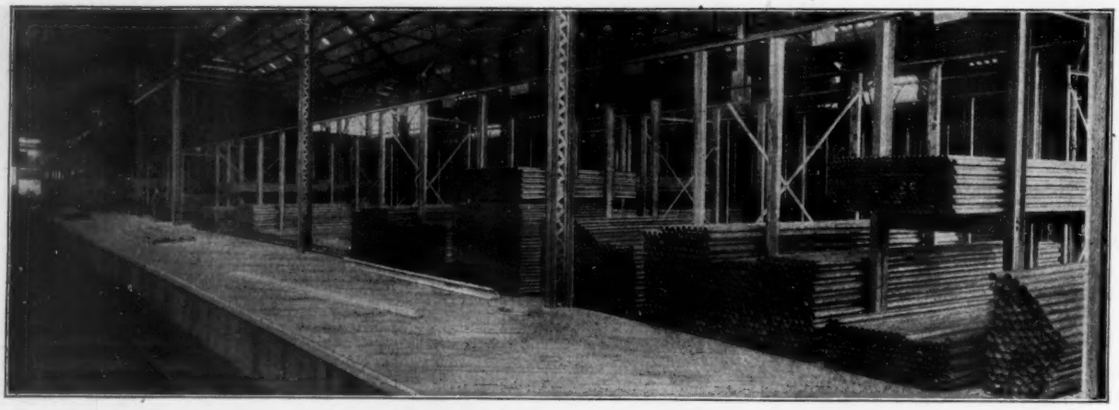


FIG. 9—SECTION OF TUBE FLOOR, SHOWING CONSTRUCTION OF CHANNEL FORMED RACKS.

warehouse, the warehouses for storing tubes, galvanized sheets, machinery and heavy tools, and the various specialties, about 1,100 in number. The combined area covered by these buildings is 415 x 596 feet. The office building, an exterior of which is shown in the group, Fig. 5, occupies one corner and is three stories high. The plate and bar warehouse is a continuation of this building, and is of the same type of construction, but instead of three floors, the same height is given to two floors which permits of ample head room for storing the bars on end and also for manipulating the system of trolley service installed overhead on the plate and bar floors. The balance of the adjoining warehouses is but one story high, but of the same height, to the top of the columns, as the bar warehouse, so that in reality a height equivalent to one and one-half stories is obtained to which is added the space under the gable roofs. The roof of the office building is of saw-tooth design of ordinary construction, the balance of the building being covered with roofing tile. As indicated in the illustrations the buildings are brick walled and of an architectural design unusually attractive for this class of structures.

The offices are confined to the third floor of the building and are reached by elevator and stairway, both from the front entrance to the building and from the warehouse. They are unique in elegance of appointment and arrangement and in area they cover more than 30,000 square feet of floor space. Interior views are shown in Fig. 5. Contiguous to the walls on three sides are the offices of the members of the firm, and the various heads of departments. Reception and directors' rooms, and rooms for private conferences are among these. The large central portion of the floor is assigned to the sales, accounting, credit and filing departments, each being enclosed. For the most part the various offices are enclosed in plate glass partitions and, except the accounting department, the main floor is divided into section by desk high panelled railings. Furniture and woodwork are identical in finish and style throughout, the wood being quarter-sawed white oak with a distinctive light brown stain. The hardware trimmings are plain, as is the wood-

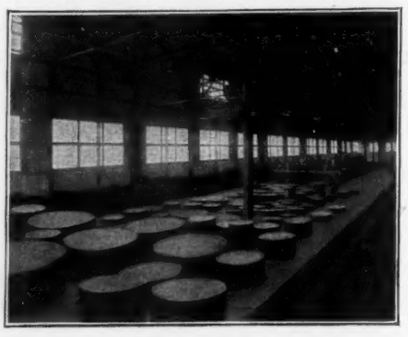


FIG. 10—ONE SECTION OF THE FLOOR DEVOTED TO STORING BOILER HEADS. RAILROAD SPUR INTO WAREHOUSE IS SHOWN.

work design, and are of sand-blasted, oxidized bronze. The engineering department is located in separate rooms at the rear of the general offices, as are also lavatories and locker rooms. Mechanical ventilation of an advanced type is a feature of the office. A blower and heating plant, regulated by thermostat control, is installed on the floor below the office. All of the air is washed before entering the office and it is an established rule that windows shall never be opened. The steam plant for supplying the steam to the heating coils is in a small boiler house adjacent to the warehouses and consists of two standard internally fired marine type boilers with Morrison corrugated furnaces.

On a mezzanine floor between the second and third floors of the office building are located a dining room and smoking room, views of which are also shown in Fig. 5. On the floor below is a bath room and barber shop for the office employes, and rooms are provided for dormitory purposes so that employes desiring to remain when occasion requires may stay all night at the plant with comfort. For additional convenience in the transaction of business a down-town office has been established in the Commercial National Bank building and an hourly automobile service to the plant is maintained.

Directly underneath the office, on the second floor and occupying like floor space, is the storage for high grade and special sheets of all sizes. These are handled by truck to a freight elevator which serves the floor and by which they may be lowered to the shipping floor immediately below. This floor is enclosed and adequate precaution taken for the protection of the sheets.

On the ground floor below is located a storage for rivets, shipping platform for teams, shipping office and teamsters' room. The rivets are kept in kegs which are arranged in stalls according to sizes, and are handled for shipment by means of hand trucks to the adjacent shipping floor. This shipping platform, because of its equipment and arrangement, is one of the important features of the plant. Material from any part of the warehouses can be brought to it by trolley, crane or elevator. Serving the floor itself are four three-ton Sprague electric hoists, operated by hand chains, extend the length of the floor from underneath the warehouse cranes in the rear, to the entrance from the street. One crane

is located in each of the four bays comprising the platform. Each bay is provided with floor scales and the floor is unobstructed to permit of heavy teams driving in from the street and maneuvering within the building. Placed at the rear of the shipping platform are plate and sheet shears built by the Cleveland Punch & Shear Works, Cleveland, and Long & Alstatter, as well as a J. M. Robinson Mfg. Co. corrugating machine.

There are also installed in the warehouse four guillotine plate shears, one of which, manufactured by Hilles & Jones, weighs 260,000 pounds, and has capacity for cutting 12 feet of 2-inch steel at one stroke. This is the largest machine of its type ever built.

The teamsters' room where they may wait while their load is being handled is adjacent to the shipping floor and is a part of the general wagon shipping office. The furnishings of this shipping office are similar to those of the general offices.

Storage for Galvanized Sheets.

Immediately back of the above section are stored the galvanized sheets, this department being shown in Fig. 7. This view also shows the lighter steel construction of the one-story portion of the warehouses of which this is a part, the latticed columns and roof trusses, the style of roof and the lighting arrangement. It will also be noted that while no crane is installed in this bay, the brackets for supporting the runway are in place for the future installation of crane service, which provision applies as well to all other bays in the warehouse in which cranes are not already operating. An arrangement used here and elsewhere in the warehouse, for increasing the number of separations of sizes upon a given floor space, consists of platforms built of channel steel and standing at a height of five or six feet. This permits of storing material, under and upon the platforms, of two different classes.

Machine Tool Display Room.

Fig. 7 also shows a part of the partition which separates from the sheet floor the room in which the machine tools are displayed. This room is of such a height as to leave sufficient clearance between its roof and the roof trusses of the warehouse for the operation of a 15-ton Pawling & Harnischfeger crane which travels throughout the length of this bay. The middle panel in the metal roof of this machine room is removable, and with this arrangement, machines may be lifted in and out of the machine display room by means of the crane and be transferred to the adjacent wagon platform or railroad car with little difficulty. A practically complete isolation of this room from the balance of the warehouse is obtained. Power is supplied by electric motor and group drive and all the facilities are provided for making actual demonstrations of the tools handled.

Specialty Warehouse.

The portions of the warehouse on the ground floor already described are naturally separated from the balance of the building on the one side by a crane bay which traverses the entire length of the warehouse through the middle of the building and for the full height of the building. At the rear shipping tracks are run in as shown in the ground plan, Fig. 2, and at a grade sufficiently below the floor level so that the car bottom is flush with floor. These latter tracks make of the rear of the warehouse a distinct and separated floor and here the various specialties are carried in stock. This specialty warehouse is shown in part in Fig. 10, and here perhaps in less space than any other place in the entire warehouse is apparent the diversity of interests which this business serves and the ramifications into which it has developed.

Storage for Bars, Hoops, Tubes and Plates.

The remainder of the warehouse, east of the middle crane bay, is devoted to the storage of bars, hoops and tubes on the ground floor, and above the bar floor to the storage of plates. The building is of very heavy steel construction, with solid built-up section columns and I-beam floor girders. There is no separation of the bar and hoops floor and the manner of keeping this material in stock is shown in Fig. 6. The bars stand on end, supported by racks between the columns and are handled on trucks and by means of trolleys. The aisles are electrically lighted. The bar floor together with the plate floor above has over 100,000 square feet of storage space and provides for the carrying of 740 different bar sizes.

The plate floor, Fig. 3, is arranged in bays in which the plates are classified according to quality and size. The plates are piled flat on the floor to prevent distortion and are carried in over 600 sizes. This floor is also electrically lighted along each row of plates. The tube floor adjoins the bar stock. The tubes are piled, by sizes, in racks or booths built of channel iron as shown in the view of this floor, Fig. 9. Metal signs on which are painted the size of tubes in each booth are hung from the framework.

Internal Transportation and Handling Facilities.

One of the features of interest in this warehouse are the facilities for internal transportation and for handling material. As in the south warehouse, the east end of this building is traversed by a railroad spur. These switches provide direct connection with the Pittsburg, Cincinnati, Chicago & St. Louis railroad, the Chicago, Burlington & Quincy, and the Terminal Transfer, and there is sufficient trackage within the warehouse to permit of loading or unloading 49 cars under the warehouse roofs simultaneously.

Cranes in the North Warehouse.

For handling material within the north warehouse are two crane bays, the one in the middle, mentioned above, and the extreme end bay in which are also the railroad spurs. The plate floor does not extend over to the east wall, which allows for the installation of a crane directly over the railroad cars on track. In both of the crane bays there are two runways, one for a first floor crane and the upper one for the second floor. Two cranes are installed on each runway. The cranes, of a type built by the Case Mfg. Co., Columbus, are of 10 and five tons capacity and their hoists are trolleys independent of the crane and operating on I-beam runners. I-beams are also hung across the bar, plate and tube floors in alignment with the I-beams hung from the crane carriages on both levels. It is arranged therefore to run these trolleys off the cranes and across the floors at right angles to the crane runways. As the I-beam runners are hung at as close intervals as desired, every portion of the floor can be reached by means of these trolleys and connection can be obtained therefrom to any other part of the warehouse. This system provides complete communication throughout the plant.

In every aspect the Ryerson warehouses reflect a desire to secure the best facilities obtainable, and indicate an equipment designed to meet in the best way that could be planned, the demands of the business, regardless of cost.

The Wisconsin Steel Co. blew in its No. 2 stack at South Chicago, Ill., for the first time June 30. It has a daily capacity of about 400 tons.

NEW PATENT LAW

Arouses Apprehension Among Canadians in View of Churchill's Explanation.

Toronto, Can., July 4.—The new British patent law which goes into effect July 28 providing that foreigners who obtain British patents must manufacture their goods or have their processes operated on British soil, is causing considerable uneasiness among Canadian inventors and manufacturers who hold British patents. It is uncertain whether under the law, Canadians are regarded as foreigners or not. The consensus of opinion among patent solicitors on this point is that they are. In support of this view the authority of Right Hon. Winston Churchill, president of the British board of trade, is quoted. In answer to a direct question as to whether Canadians were in the same category as Americans, Germans, etc., or whether, as British subjects, they were on a preferential basis, Mr. Churchill replied:

"The patents in question will be liable to be revoked unless the patentee gives satisfactory reasons why the patented article is not manufactured, or the patented process carried on to an adequate extent in the United Kingdom. It will be for the comptroller in the first instance subject to an appeal to the court, to determine, after hearing evidence on both sides in each case, whether the reasons given for non-working are satisfactory or not."

As thousands of Canadian patents are registered in England the application of the law, if this view prevails, will be seriously felt here. The patentee, in order to protect his rights in England, will either have to manufacture there, or license some British manufacturer to work the patent. In addition to the national conservatism of the British manufacturer, the fact that, failing the operation of the patent in England, he would be at liberty to avail himself of the invention without paying royalties, will, it is thought, render it difficult or impossible in most cases to make any such working arrangement as will satisfy the law. The situation as it at present exists is full of complications and patentees consider that their interests are seriously threatened.

CINCINNATI NEWS NOTES.

Thomas R. Knowles and E. Squires, Birmingham, Eng., officials in the Metropolitan Amalgamated Railway Carriage & Wagon Co., were in this city last week and made purchases of Cincinnati machinery. They were introduced on change by S. P. Egan, of the J. A. Fay & Egan Co.

A slight improvement in machine tool business has been noted, but orders continue light and inquiry is not specially encouraging. However, any improvement at all has a tendency to stimulate hopefulness and it is believed that before the close of the second half of the year considerable improvement will be shown.

A press dispatch from Richmond, Ind., stating that John Rahn Jr. and W. H. Carpenter, of the Rahn-Carpenter Co., were in conference in that city with an improvement association with a view to moving their factory to Richmond, Ind., has been denied by Mr. Carpenter, who says there is nothing in the report.

The Weber Foundry has been sold to the Wessling Bros., of Cincinnati, by the trustee at private sale. The plant sold for $15.100 subject to a ground rent of $20,000, which is to be assumed by the purchaser. The Wesslings take possession Aug. 1, and announce that they intend to put the plant in shape to do a jobbing foundry business at once.

The creditors of the Steel Foundry Co. held a meeting on Wednesday, July 1, and heard a satisfactory report from receiver, W. B. Melish, who advised that negotiations are on with two parties for disposition of the plant. Neither of the propositions has as yet sufficiently progressed to make it clear whether a sale will result.

SUBSCRIPTIONS TO WESTINGHOUSE PLAN ARE SATISFACTORY.

The readjustment committee of the Westinghouse Electric & Mfg. Co. has issued a letter to creditors explaining the action taken after the meetings of last week with the merchandise creditors' committee, stockholders' meeting and the employes' committee. The readjustment committee states that a total of $8,270,862 toward the refinancing of the company has been subscribed, and that it is now willing to co-operate and to accept on Sept. 1 the merchandise creditors' plan, upon condition that at least $10,000,000 of subscriptions for new stock and all payments of matured installments shall be made on that date, and that all other conditions of the plan be complied with. The conditions also include provision for the election and continuance of the board of directors satisfactory to the readjustment committee, either by proxy committee or otherwise, so as to insure a conservative management of the future financial and business affairs of the company.

Blast furnace D of the Bethlehem Steel Co., South Bethlehem, Pa., is being dismantled and will be replaced with an entire new furnace and equipment of the same plan as E furnace, which was put in blast in April, 1907.

MORE STEEL REQUIRED

For Grade Crossing Elimination as Authorized at Columbus, O.

Columbus, O., July 6.—The project to eliminate grade crossings in Columbus, O., took a long stride forward last week, when the municipal officials received a copy of the contract between the city and the Panhandle railroad, signed by the officers of the company. The city council has authorized the board of public service to sign the contract. Council also appropriated $227,057 to pay its share of the elevated Pennsylvania crossing work. Negotiations with the Hocking Valley and Toledo & Ohio Central lines are progressing nicely. The elevated crossings will be largely of steel construction.

In accordance with orders issued by the officials of the Hocking Valley Railway Co., the working time in the locomotive repair department of the Columbus shops has been increased from 30 to 45 hours a week. Additional men are also being put to work in the Columbus shops and also in the freight car repair department of the Logan shops of the company.

Contract was let last week for the construction of the new machine shop at the plant of the Buckeye Steel Casting Co., of Columbus, to the Mt. Vernon Bridge Co. The building, which is one of three that is being built by the company this year is 60 x 300 feet and of steel construction.

The Columbus Iron & Steel Co., Columbus, will commence the construction of a new steel trestle and ore bins at its plant in the near future. The bins will be 200 feet long and about 500 tons of structural steel will be required. The contract has been let to the McClintic-Marshall Construction Co., Pittsburg.

On receiving several large orders for its patented steel washer, the Capitol Lock Nut & Washer Co., Columbus, which has been closed for some time, has resumed operation.

To Install Gayley Dry Blast.—The Cleveland-Cliffs Iron Co. has decided to install the Gayley dry blast at the Marquette furnace and has retained Frank C. Roberts & Co., Philadelphia, as the engineers for the plant. Outside of the two plants built by the United States Steel Corporation, all Gayley dry blast plants so far constructed have been designed by and erected under the supervision of Frank C. Roberts & Co.

The Belfont Iron Works Co., Ironton, O., plans to blow out the Belfont stack in about 10 days.

CALCULATING THE BURDEN OF A BLAST FURNACE.

In a recent issue of the *Engineering and Mining Journal,* Randolph Bolling shows a method of calculating the burden of a blast furnace, as follows:

The first consideration in calculating a charge is the grade of iron the furnace is to make, whether basic, foundry, malleable, special high-silicon, Bessemer, or low-phosphorus. It is by charging the ores, limestone and coke in certain predetermined "rounds" or charges that a definite chemical composition of the metal tapped is secured, together with the continuous operation of the furnace. We may assume in beginning our calculations that the following analyses represent the average composition of the materials assembled:

COMPOSITION OF MATERIALS.

	Coke. Per cent.	Iron Ore. Per cent.	Dolomite. Per cent.
SiO_2	3.35	20.0	6.0
Al_2O_3	2.73	3.20	1.15
CaO	0.10	3.10	30.0
MgO	0.10	2.60	19.0
Fe_2O_3	....	70.0	.....
Fe	....	50.0	.....
Mn_3O_4	....	0.20	.....
P_2O_5	....	1.05	.....
SO_3	....	0.10	.....
CO_2	....	.....	44.0

Suppose the slag required to be one having about the fusibility of a sesqui-basic slag; that is, of a slag in which the oxygen ratio is 4 to 3. In the accompanying table of slag types it appears that for this type one part of lime saturates 0.714 parts silica, or one part of silica requires 1.4 parts of lime. After choosing any proper amount of coke per ton of ore melted (0.75 ton is in most cases sufficient), all the data necessary for the calculation are at hand.

TYPES OF BLAST FURNACE SLAGS.

Composition.	Acid.	Sesqui-acid.	Neutral.	Sesqui-basic.	Bi-basic.	Tri-basic.	Quadri-basic.
SiO_2 (per cent)	68.19	61.65	51.72	41.66	34.88	26.30	21.13
CaO (per cent)	31.81	38.35	48.28	58.34	65.12	73.70	78.87
O of SiO_2 : O of bases.	4:1	3:1	2:1	4:3	1:1	2:3	1:2
1 part CaO saturates SiO_2.	2.143	1.6071	1.0713	0.714	0.538	0.357	0.268
1 part SiO_2 saturates CaO.	0.466	0.622	0.932	1.400	1.858	2.829	3.732

In order to determine the quantity of lime required to flux the entire charge, it is convenient to begin by finding the equivalents in silica and lime for the elements in each material in the burden.

The iron ore contains 20 per cent silica, but the alumina, lime, magnesia and manganese oxide present have a total fluxing power equivalent to 12.1 per cent lime. In the same way the slagging equivalents in the dolomite used as flux are 6 per cent silica and 58.47 per cent lime; and those of coke 3.35 per cent silica and 4.69 per cent lime. Since the calculation is made upon a basis of iron ore, and since only 75 per cent coke is required the equivalents for coke will be only three-fourths of those found, or 2.52 tons silica and 3.52 tons lime per 100 tons ore.

Combining the equivalents of the iron ore and the coke required to smelt it, gives 22.52 tons silica and 15.63 tons lime per 100 tons ore. Since in the desired slag one ton of lime satisfies 0.714 tons silica, the lime equivalent in the ore and coke will satisfy $22.52 - (15.63 \times 0.714) = 11.16$ tons of the silica in those materials, leaving $22.52 - 11.16 = 11.36$ tons silica to be saturated with the flux, which in this case is dolomite.

The silica in the dolomite will itself require $6 \times 1.40 = 8.40$ per cent lime equivalent, leaving $58.47 - 8.40 = 50.07$ per cent for fluxing purposes.

The ore and its coke contain 11.36 tons silica unsatisfied by the fluxing elements in those materials per 100 tons ore. This will require $11.36 \times 1.40 = 15.91$ tons lime equivalent, and to supply this equivalent will require $15.91 \div 50.07 = 0.317$ ton of dolomite per ton of ore.

The charges are, therefore, made up in the proportions of one ton iron ore, 0.75 ton coke and 0.317 ton dolomite; and since the ore contains 50 per cent iron, the furnace will consume two tons of ore, 1.5 tons coke and 0.634 ton dolomite per ton of pig iron made.

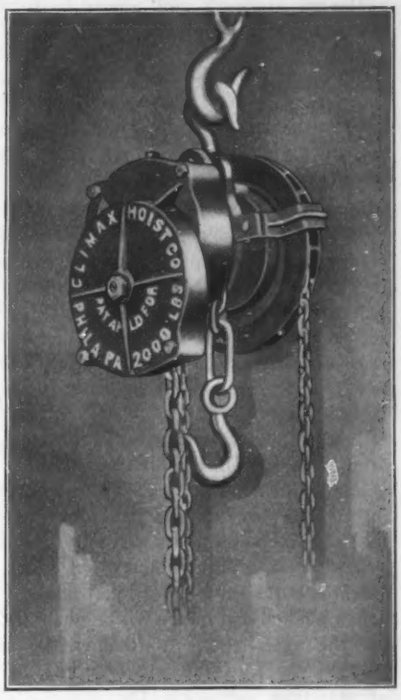
The slag will contain all the elements in the charge which have been calculated as lime and silica equivalents. The ore and coke introduce silica equivalent to 22.53 per cent, and the dolomite 1.90 per cent, or a total of 24.43 per cent of the ore charged. The total lime equals an equivalent of $15.63 + 18.59 = 34.22$ per cent of the weight of ore charged. Converting these quantities in percentages of the total charge gives 41.66 per cent silica and 58.34 per cent lime.

In modern blast furnace practice iron ore is usually fed in 5-ton charges and coke and limestone in proportion. The first cast of iron is usually rather high in sulphur.

The temperature of the slag may be judged closely by the color when cold. If the furnace is hot the cold slag is white or bluish; when the furnace is not so hot the slag will be gray. A jet-black slag is the danger signal. It signifies either that water is leaking into the stack from some cooling block, or that the furnace is overburdened and that some ore and flux should be taken off the charge.

AN IMPROVED CHAIN BLOCK HOIST.

The accompanying illustration shows an improved chain block hoist which has been placed on the market by the Climax Hoist Co., 1753 No. Howard street, Philadelphia, Pa. The hoist is stated to have an efficiency of 80 per cent. The load is carried on hardened



CLIMAX CHAIN HOIST.

and ground rollers and all gears are enclosed and run in a bath of oil. The hoist is provided with a retaining brake and is noiseless in operation. All parts are made to jig and are interchangeable.

The principle of operation of the hoist is as follows: The load chain runs in a sprocket which is keyed to a long sleeve supported in the housing and cast in one piece with an internal load gear. This gear is driven by a spur pinion carried on a stud. The pinion is in one piece with an internal gear, in turn driven by a spur pinion carried on the hand chain wheel shaft which passes through the hub of the load gear to the opposite end of the block where the hand chain wheel is situated. Hoisting is accomplished by pulling on the right hand side of the hand chain wheel, thereby rotating the mechanism as described. To lower the left hand chain is pulled, this action releasing the friction brake and permitting the load to descend.

THE BARNES GAP LATHE.

The accompanying illustrations show a 12- to 22-inch sliding extension gap engine lathe, which is being manufactured by the Barnes Drill Co., Rockford, Ill. The important feature of this lathe is the sliding top bed which permits an increase in the width of the gap, which may be varied to suit the requirements of the work. This feature not only increases the swing of the lathe, but also its distance between centers. The lathe has the necessary strength and power to turn the full diameter of the swing in the gap and at the same time it is free from awkward features when used on ordinary work.

The bed is broad, deep and well braced. The top and main beds are fitted together by a dove-tail construction which permits the top bed to be held firmly at any point by means of clamping bolts placed transversely through the main bed. To extend the gap the top bed is drawn back by means of a screw and crank at the rear end. The rack and pinions are cut from steel, the rack being made in one piece.

The headstock is massive and strong. It carries a hollow spindle accurately ground and runs in large bronze bearings. The cone pulley has four steps for a wide belt and is strongly backgeared, giving eight changes of speed. Locking and unlocking the cone is accomplished by means of a push pin on the rear gear, no wrench being necessary. The tail stock is of the off-set type, allowing the compound rest to be set parallel with the bed. The tail stock also has a set-over adjustment for taper work.

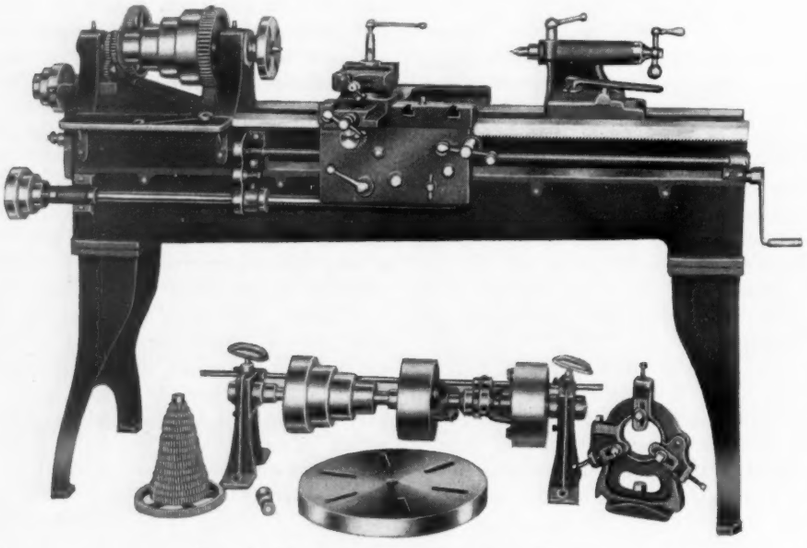


FIG. 1—BARNES LATHE WITH GAP CLOSED.

The carriage is extended in front and is made very strong to provide a support for the tool when work is being done in the gap up to the limit of its swing. The carriage is fitted to the bed with long bearings on the V in front and with flat bearings at the rear. It is gibbed throughout and can be conveniently and quickly clamped to the bed for cross-feed work. The carriage is also fitted with T-slots for clamping on work.

The compound rest has a graduated base, is properly gibbed and has sufficient travel for the largest capacity of the machine. Power feeds, both longitudinal and cross, are provided and the necessary change gears are furnished for cutting either right or left hand threads consecutively from two to 18, including 11½ pipe thread, and cutting threads by twos from 18 to 36 and by fours from 36 to 48. The

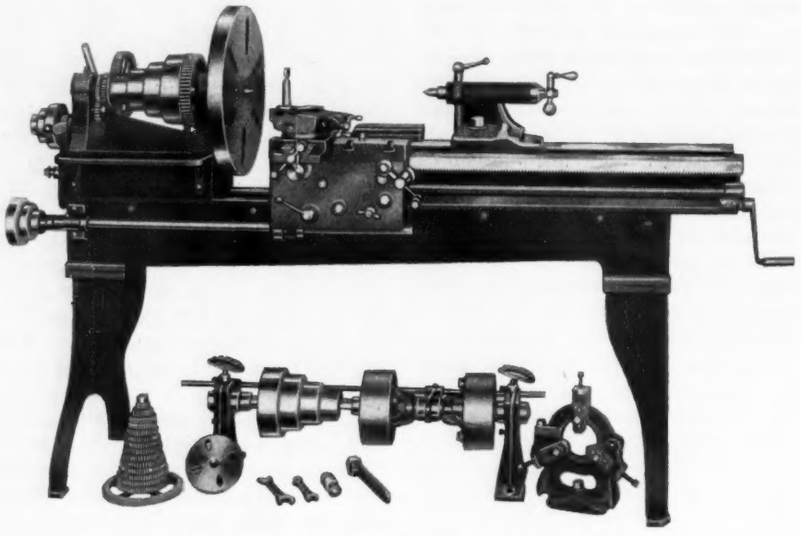


FIG. 2—BARNES LATHE WITH GAP OPEN.

following table shows the principal dimensions of the machine:

Swing over bed	13 inches
Swing over carriage	8½ inches
Swings through gap	22½ inches
Hole through spindle	25/32 inch
Spindles chucked, Morse taper	No. 3.
Ratio of back gearing	8:1
Slot in tool post takes	⅜ x ¾-inch tool.
Center rest takes in	4 inches
Angular travel of compound rest	3 inches
5½-foot lathe takes between centers, closed	36 inches
5½-foot lathe takes between centers, extended	54 inches
5½-foot lathe gap opens	18 inches
Weight with countershaft	1155 pounds net

THE HAMILTON DOUBLE BACK GEARED LATHE.

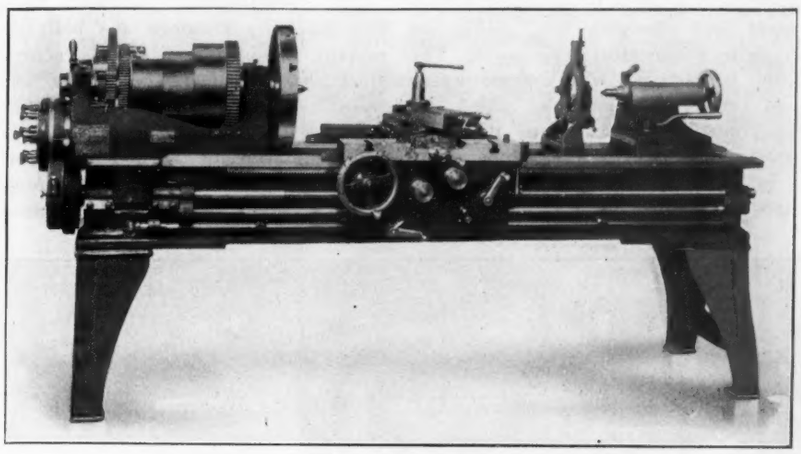
The accompanying illustration shows a lathe recently brought out by the Hamilton Machine Tool Co., Hamilton, O. It is known as the style A lathe, with double back gears and three-step cone. The double back gears are designed to fit the lathe for use on unusually heavy work, or for high speed. This type is made in all sizes up to and including 28-inch, and larger lathes are furnished with triple gears when extra power is needed. The double back gears can be instantly connected or disconnected by spring locker pinions and either set can be quickly thrown in or out.

The lathes are also equipped with a patented universal screw cutting and feeding attachment and an improved system of mounted change gearing, giving a full range of screw pitches and feeds without removing any gears. The bed of this machine is wide and deep, heavily webbed with generously proportioned V's. Beds on long lathes are provided with intermediate

legs properly placed to afford a rigid support.

The head stock is massive and stiffly designed to prevent all vibration and chatter. An improved locking device is fitted to the cone spur gear of the smaller lathes, by means of which the cone pulley may be locked or unlocked without the use of a wrench, permitting the back gears to be quickly thrown in or out. The spindle is hollow and is a high carbon crucible steel forging. On lathes up to 20 inches the thrust washers in the thrust bearings are of steel, hardened and ground, while lathes 22 inches and over are provided with ball thrust bearings. The tail stock has a curved front, allowing the compound rest to be used at right angles to the cross slide. The tail spindle is graduated in inches for convenience in drilling, and has a long movement. It may be set over for turning taper if desired, or a regular taper attachment can be used on the machine. On the 26- and 28-inch lathes quick lateral attachment of the tail stock is provided by means of a rack and pinion.

The carriage is securely gibbed front, center and back and bears on the bed throughout its entire length. It is flat on top and provided with T slots for the adjustment of work on it. Power longitudinal and cross feeds are provided, the cross feed screw having a micrometer attachment. A chasing dial is furnished, graduated to indicate the rotations of the lead screw and enables the operator to throw in the nut at the proper time, permitting the return of the carriage by hand. The compound rest swivel is graduated in degrees so that it may be quickly adjusted to any desired angle. The apron mechanism is so arranged that it is impossible for both the lead screw and feed rod to be engaged at one time, thus eliminating one cause for breakage. The longitudinal and cross feeds are friction driven and can also be thrown in or out. The friction also acts as a safety in case any obstruction is met. All feeds are reversible from the apron. An automatic stop is provided which is very effective. The principal dimensions of the 18-inch lathe are shown in the following table:



HAMILTON DOUBLE BACK GEARED LATHE.

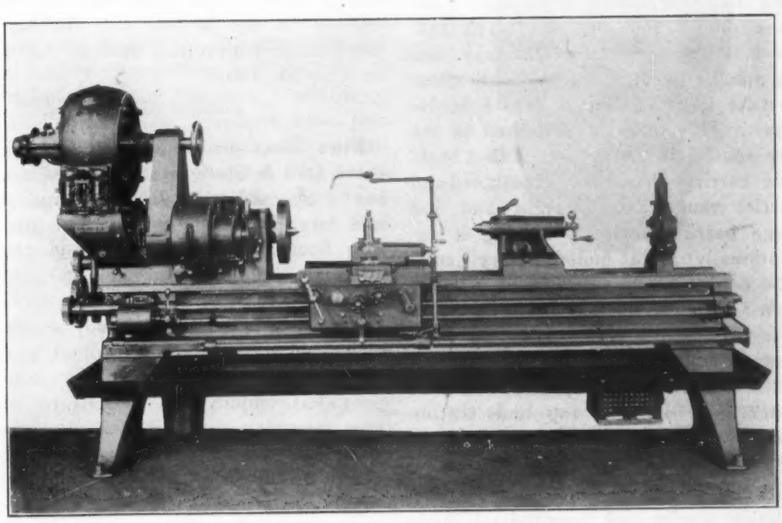
Swing over shears	19 inches
Swing over carriage	11¾ inches
Swing over compound rest	10¾ inches
Length between centers, on 6-foot bed	2 feet 4½ inches
Range of screw pitches, including 11½ pipe thread	1 to 25 per inch
Range of feed	4
Diameter of hole through spindle	1⅜ inches
Diameter of tailstock spindle	2 1/16 inches
Traverse of tailstock spindle	7 inches
Traverse of compound rest	4⅜ inches
Steady rest takes in	5¼ inches
Net weight of 6-foot lathe	2300 pounds

A MOTOR DRIVEN HIGH POWER RAPID REDUCTION LATHE.

The accompanying illustration shows a 19-inch motor-driven high power rapid reduction lathe of recent design built by the Springfield Machine Tool Co., Springfield, O. The lathe is neat and compact and the gears are well covered, affording protection from injury due to contact with the moving parts. The head is heavily ribbed and tied together at all points where strains may occur. The ribs pass between the gears at points in the upper portion of the head while the lower portion is ribbed lengthwise and crosswise.

The spindle is made exceptionally heavy and runs in generously proportioned lumen metal bearings. Oiling of the spindle and back gear journals is accomplished by means of triangular-shaped babbit rings carrying a profuse stream of oil. The gears in this machine are all of steel and where the gears run directly on the spindle they are bushed with bronze.

The various speed changes of the machine are accomplished as follows: The first series is obtained by a direct silent chain drive from the motor to the spindle. The second speed change is obtained through a train of gears comprising a set of spur and a set of spiral gears, the spiral gears giving a smooth, even cut, allowing fine cuts to be taken without producing chatter marks. The third series of speed changes is obtained by a double set of back gears, and with the arrangements as above described all spindle speeds from 10 to 285 revolutions per minute may be obtained. The machine as shown is



SPRINGFIELD RAPID REDUCTION LATHE.

The Carnegie Steel Co. now has in blast 23 out of its total of 55 stacks, a gain for the month of June of three stacks in operation.

driven by a 7½-horsepower variable speed motor with a speed range of 2:1.

The clutches in the head are of steel and positively acting. They are arranged, however, so that the machine does not have to come to a dead stop before changes can be made. The lathe when belt-driven has 10 mechanical changes of speed, and with a two-speed countershaft is designed to give a cutting speed of 80 feet per minute from all diameters from 1½ to 18½ inches.

The bed is of heavy pattern and well tied together. The ways comprise one V and one flat. The tailstock is made extremely heavy and its spindle is of extra large diameter to take large centers of No. 5 Morse taper. This taper is also used in the live spindle in connection with a bush. The carriage has been redesigned and carries much extra weight and has large bearing surfaces, making it exceptionally rigid under heavy cuts. The compound rest is also of new design and is clamped by bolts on either side. The cross feed screw and compound rest screw have micrometer collars and the compound rest has taper gibs in the top and bottom slides.

The apron is of the double type with heavy gears throughout. The friction knobs and longitudinal feeds are made with a series of small beads on the outside circumference to give a good grip. The rack pinion is made so that it can be withdrawn at any time while chasing threads.

The machine as shown is equipped with the new standard change gears which are a modification of the rapid change gears generally in use. In addition the lathe is equipped with a rapid feed changing box, giving six feeds in geometrical progression. The lathe is equipped with automatic stop and reverse, the latter of which can be controlled either from the head or apron as desired by the operator.

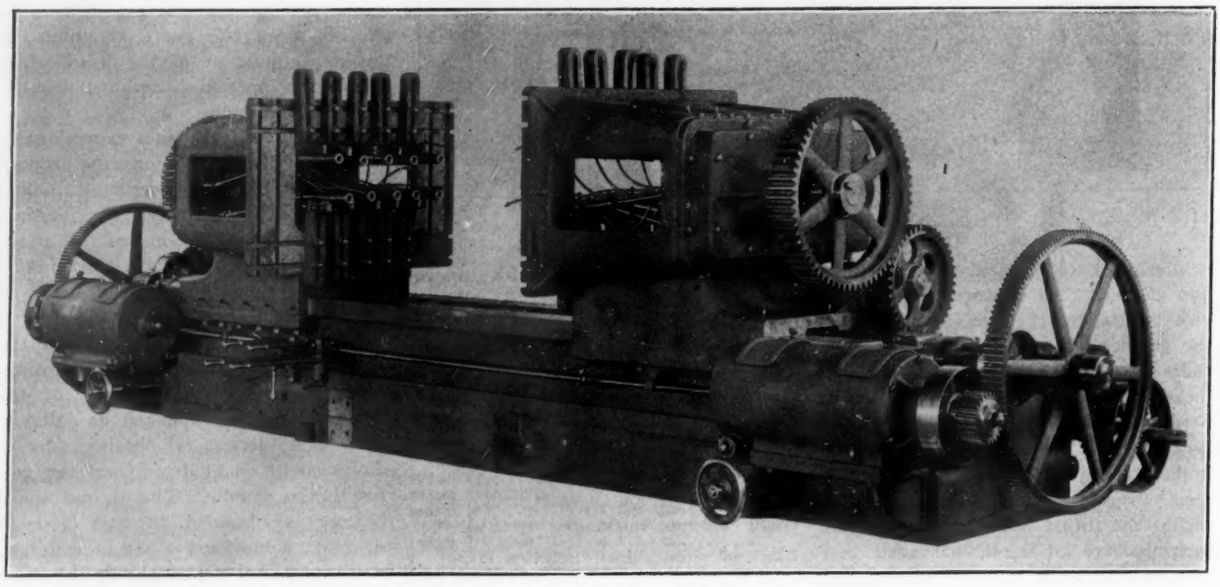
In an actual test this lathe developed high power and took cuts at a cutting speed of 60 feet with a feed of 5/32 inch reducing the metal 1½ inches. The material worked was 60 carbon steel. This tool was on exhibition at the Master Car Builders' Association convention held at Atlantic City in June.

Buys Discarded Mill.—The Consolidated Rail & Steel Co., St. Louis, Mo., has purchased the discarded rolling mill of the Republic Iron & Steel Co., Springfield, Ill., containing nine miles of double track steel and iron standard section rails, together with several steel structures and all the mains, on top and below ground, paying $5,250 for the plant. The company has employed a large force of men removing the rails, sorting them, etc. The Consolidated company recently established a machinery and supply department, and is building a modern machine shop with tools for overhauling machinery.

The Standish stack of the Northern Iron Co., Standish, N. Y., was blown in June 16.

TWO INTERESTING MULTIPLE SPINDLE DRILLING MACHINES.

The illustrations herewith show two machines designed and built especially for drilling the new structural steel shapes, called "Bethlehem sections," manufactured by the Bethlehem Steel Co., by the Grey process. The equipment for this one plant consists of eight double head horizontal and four single head vertical machines, arranged in a line, with every other machine on a sliding base, to accommodate the drilling of various lengths, as may be required.



BAUSH HORIZONTAL MULTIPLE SPINDLE DRILLING MACHINE.

The double head horizontal machines are made in two sizes—one size carrying 12-inch x 48-inch heads, that is, the adjustable drill spindles cover any layout within a rectangle 12 by 48 inches. These heads are equipped with 18 drill spindles. The other size carries heads 12 x 24 inches, with 10 spindles to each head. Both heads on the horizontal machine are operated independently or together, at the will of the operator.

The single head vertical machines are also built in two sizes—one carrying 16 drill spindles on a working rectangle of 12 by 36 inches and the other carrying 10 drill spindles on a working rectangle of 12 by 24 inches.

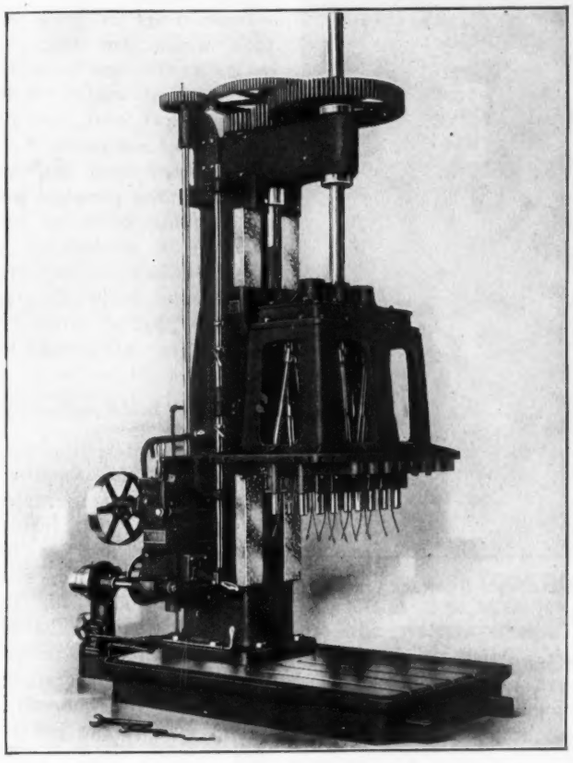
All spindles have No. 3 Morse taper and are designed for drilling 1-inch holes in soft steel, at a speed of 55 feet per minute on the periphery of the drill, with ranges of feed up to 0.01 inch, per revolution of the spindle.

Each head is equipped with an oil

pump, pan, reservoir and connections to each spindle, to allow the independent oiling of each drill; also with a two speed quick return of the drills.

The double head horizontal machines are for drilling flanges and the vertical machines are for drilling the web. This allows the necessary drilling with the minimum handling of the work. In case of the double head horizontal machines, each head sustains the drilling pressure of its opposite. In both style of machines each head is independently driven by a variable speed motor and in case of the movable machines, an extra motor is required for that purpose. The 18-spindle heads are driven by 25-horsepower motors, the 16-spindle heads by 20-horsepower motors and the 10-spindle heads by 15-horsepower motors.

The vertical machines weigh about 11,000 pounds, and the double head horizontal machines about 25,000 pounds without motors. These machines were designed and built by the Baush Machine Tool Co., Springfield, Mass.



BAUSH VERTICAL MULTIPLE SPINDLE DRILLING MACHINE.

The Pittsburg Forge & Iron Co., Pittsburg, has signed the wage scale of the Sons of Vulcan for 1908-1909, and has resumed operation at its plant which contains 35 puddling furnaces.

AN IMPROVED STOCKING GEAR CUTTER.

The subject of accurate and noiseless running gearing is one which has interested machine designers and all others using gearing, for a great many years, and the development of special machines or accessories for turning out improved gears has advanced considerably during the past decade. In machines using the rotary milling or disc cutter, some attempts have been made to improve the tooth forms, while others have decided that where good results are desired, it is advisable to first rough out the teeth with a roughing-out or stocking cutter before finishing.

Some five or six years ago, Gould & Eberhardt, Newark, N. J., brought out what they term their stepped style of stocking cutter for roughing out the teeth of coarse pitch gearing, preparatory to finishing same with a standard finishing cutter. The advantages claimed over the ordinary square saw or slotting cutter which had previously been used most generally in this country, was that by having the steps in the cutter, the chips were broken up, and consequently less power was consumed and the strain on the machine and parts was diminished. Again, the lower step of the cutter takes away the wide flank of the gear tooth space, leaving a more nearly uniform amount of metal all around for the finishing cutter to take out.

This firm has still further improved the cutter, and has recently patented the "stepped style" of stocking cutter, shown in accompanying illustration. The essential feature of difference over the former style of stepped cutter is the recessing of the tops of the cutting teeth, so that each tooth practically takes out about half as much as the old style cutter. The new stocking cutter also finishes the bottom of the tooth space, thereby relieving the finishing cutter of this duty, and saves the latter where it usually wears out first.

It is claimed that a maximum amount of stock is removed with a minimum of power consumption; the cutting edges being staggered are more thoroughly lubricated while cutting and they save the finishing cutters by removing the stock where the ordinary saw cutter leaves large corners at the points of the gear teeth. These cutters are considerably wider through the hubs than a saw or slotting cuter, lessening the liability of keys shearing off. In consequence of all of the above features they permit of faster feeds and speeds being used, and at the same time lessen considerably the strains on the machine itself.

GOULD & EBERHARDT STOCKING CUTTER.

The Rockdale, Tenn., stack of the Rockdale Iron Co. was banked June 29 and 30, preparatory to running on ferro-phosphorus. The company plans to run the stack during July and possibly part of August on ferro-phosphorus.

THE WESTINGHOUSE NEW MODEL RONEY MECHANICAL STOKER.

Another step in advance in the design of automatic stokers is found in the new model Roney mechanical stoker built by the Westinghouse Machine Co., East Pittsburg, Pa., illustrated herewith. The requirements for maintaining a high rate of combustion, coupled with smokeless operation, are: (1) the fuel should be fed to the furnace at a uniform rate varying with the load; (2) it must be coked in the presence of a preheated air supply; (3) before striking the comparatively cold surfaces of the boiler, the combustible must be brought into intimate contact with the required quantity of air. These features have been borne in mind in the design of the new stoker. To accomplish these results, several new features have been introduced.

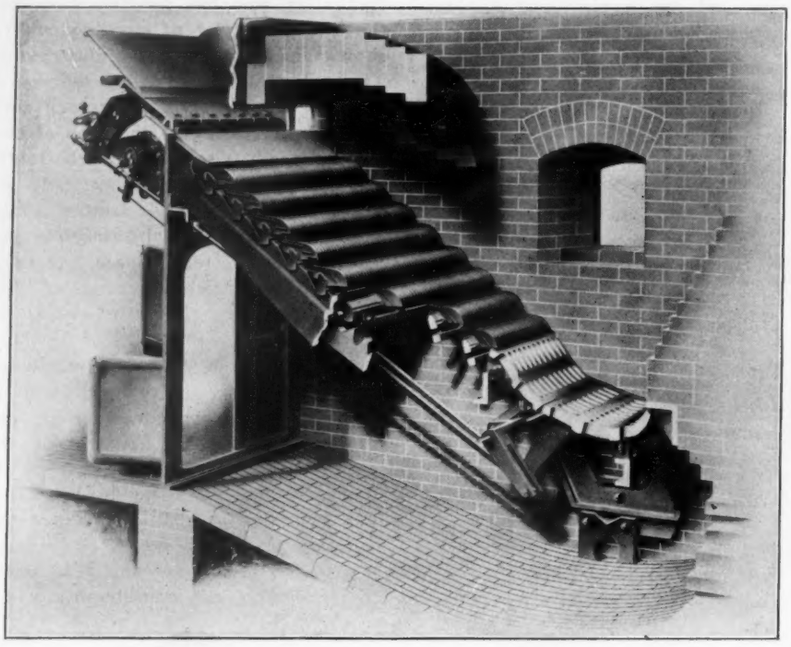


FIG. 1—SECTIONAL VIEW OF NEW RONEY STOKER AND FURNACE.

The general type of the mechanism, however, remains the same as in the older type of this machine. The coal is fed into a hopper extending across the boiler front from which it is automatically supplied to the furnace by a reciprocating pusher operated from the rocker shaft by an eccentric. Descending through the throat of the arch to the upper grate bars, where it is subjected to the intense heat radiated from the incandescent fire brick, the fuel is thoroughly coked and all volatile gases are driven off, after which the coke is gradually worked down the inclined surface by the rocking motion of the grate bars.

The oscillation of the grate bars also keeps the fuel constantly agitated, preventing, to a large extent, the formation of clinker, and bringing the fuel into intimate contact with the incoming air. After the solid combustibles have been totally consumed, the remaining ash is discharged to the dumping grate at the bottom of the furnace.

One of the most important features of the new model stoker is the sectional grate bar, or fire top illustrated herewith. This grate consists of a number of removable thin plates set on edge in V grooves. These hook over a trussed web, and are held in place by a key rod slipped in from one end, and are, therefore, easily removed. The webs have conical bearing surfaces at the end, which makes them self-centering. By lifting the webs out of the bearers and removing the key rods, the tops may be redistributed, if desired, so as to equalize the wear on the various parts of the furnace.

From tests of these standard fire tops which had been subjected to seven months service, it is found that the average annual depreciation is about 17 per cent, indicating a probable life of six years, if the parts are redistributed from time to time.

One of the principal advantages of the sectional grate bar tops is that it reduces the amount of scrap to be handled when the tops are sufficiently worn away to be discarded. It will be noted that all internal parts of the stoker are interchangeable, that no threaded bolts are used, and that any part can be removed without disturbing any other.

Another interesting feature of the stoker is the improved type of guard and dumping grate. The guard is so designed that, instead of cutting through the fire, as formerly, the lower end is raised, making it posable to dislodge all clinker formed at the bottom of the fire, and also providing an unobstructed descent for the ash and clinker separately. When brought into its normal position, the guard permits the lower edge of the fire to settle quietly without tendency to slide. The new dumping grate being hinged about one-third forward is nearly balanced and dumps both front and rear. The upward motion of the grate breaks up any clinker bridge tending to form between the grates and bridge wall. Since both the dump-

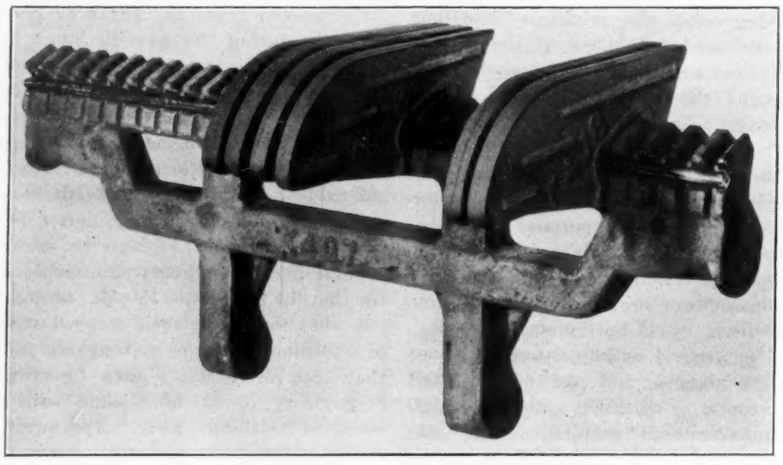


FIG. 2—PERSPECTIVE OF NON-SIFTING FIRE TOP.

ing guard and grate rest in U-shaped trunnions in the side bearers, they can be easily removed without dismantling any portion of the stoker.

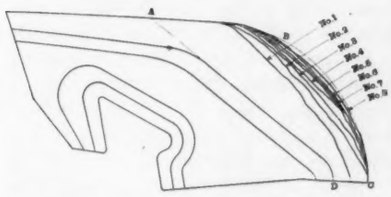


FIG. 3—PROFILE OF FIRE TOPS, SHOWING EFFECTS OF SEVEN MONTHS SERVICE.

The connecting rod, which transmits the motion to the grate bars, is so designed that it is subject to a direct and not a sidewise thrust, thus avoiding twisting stresses.

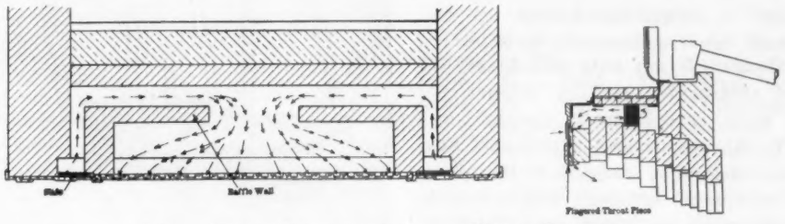


FIG. 4—DRAFT DISTRIBUTION WITH RONEY STOKER.

Improvements have been made in the distribution of the draft in the furnace. The air supply to effect the combustion of volatile hydrocarbons is admitted through two wind gates located on either side of the stoker, whence it passes in the rear of the fire-brick arch and is then directed by baffles to the crown of the arch; thence passing through the front air spaces, it emerges into the furnace through the spaces between the stoker front and the first ring of arch brick. This not only preheats the air, but assists materially in cooling the arch. The fire-brick arch is of such extent and so designed that it completely cokes the green fuel and directs the gases downward over the hottest part of the fire, permitting the volatile gases to be completely consumed before coming in contact with any of the boiler heating surfaces.

The average effective draft area of this type of stoker is 27.4 per cent of the total projected area of the furnace, as compared with an average of 17.9 per cent with flat horizontal fire tops. That this increased admission area makes it possible to obtain a high rate of combustion is pertinently indicated by a series of capacity tests, which were conducted upon a 375-horsepower Babcock & Wilcox stoker fired boiler at East Pittsburg. During these tests an output of over double rating, 224.7 per cent, was maintained for six hours, with but 0.42 inches of furnace draft. This corresponds to a rate of combustion of 46 pounds of coal per square foot of grate surface per hour. A test of 25 per cent above rating was maintained for six hours, with 0.18-inch draft, consuming 23 pounds of coal per square foot of grate per hour. The fact that the boiler and grate passed through this severe test without damage, while the brick setting was melted down, illustrates the effectiveness of the improved air distribution throughout the grates, and also the fact that a higher rate of combustion may be normally maintained with the same efficiency. This means higher output per boiler unit.

SUPPORT OF DRIVING MECHANISM ON STOCKBRIDGE SHAPERS.

Applications for patents have been made by the Stockbridge Machine Co., Worcester, Mass., on the main bearing construction of its shapers, which is illustrated in the accompanying engravings and for which important advantages are pointed out. With the ordinary construction of driving gear and crank, the gear is held from the central hub entirely, with the result that, on the large size shapers when out on their full stroke, the strain put upon this hub tends to buckle the gear. Frequently the strain is sufficient to break the gear at the hub, but in any case buckle in the gear communicates an unevenness of stroke to the ram, the result of which is a chatter.

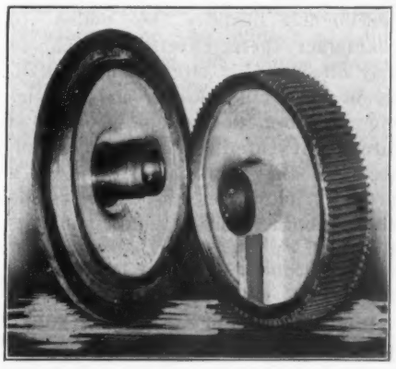


FIG. 1—PARTS OF STOCKBRIDGE DRIVING GEAR.

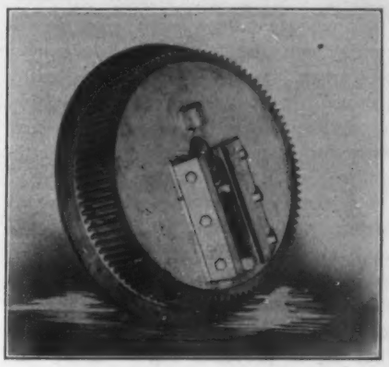


FIG. 2—STOCKBRIDGE DRIVING GEAR ASSEMBLED.

The Stockbridge method of supporting the driving mechanism is shown in the two illustrations, Fig. 1 showing the gear and main bearing and Fig. 2 the parts assembled. The main bearing has a flange which is turned to a running fit in the overhang on the periphery of the gear, the flange bottoming on the gear casting and making a support for the gear. This relieves all strain from the central hub and prevents all possibility of buckle in the gear, thus insuring a smooth and even cut regardless of the length of the ram stroke. When the main bearing is bolted to column, it becomes an integral part of the shaper. This construction adds considerably to the stiffness of the driving mechanism and makes possible a much heavier cut than could be obtained if the gear were not supported in this manner.

BRIDGE DYNAMITED.

McClintic-Marshall Co. Was About to Turn Buffalo Structure Over to Railroad.

A partly successful attempt to destroy property of the McClintic-Marshall Construction Co., in Buffalo, was made early on the morning of July 1. The company had nearly finished building a large bridge at Perry and Selkirk streets, carrying the Lehigh Valley railroad over the Nickel Plate tracks. The work, in a few days, was to be turned over by the contractors. Two explosions, which were heard everywhere in Buffalo, occurred. Fortunately but a small part of the bridge was damaged and the loss will be less than $2,000. It will be several weeks before the bridge is finished. The company has offered a reward of $2,000 for the arrest of the perpetrators of the outrage.

THE EFFECT OF MANGANESE IN STEEL AND IRON.[1]

By E. H. Graef.[2]

Manganese alloys with iron in all ratios, being reduced from its oxides by carbon at white heat. It is easily removed from iron by oxidation, being oxidized even by silica. It is also apparently removed from iron by volatilization.

Its presence increases the power of carbon to combine with iron at a very high temperature (say 1,400 degrees Cent.) and restrains the separation as graphite at lower ones. Manganese raises the power of saturation, that is, it prevents higher total carbon.

By preventing ebullition during solidification and the formation of blowholes, by reducing or removing oxide and silicate of iron, by bodily removing sulphur from cast iron and probably from steel, by counteracting the effect of sulphur which remains as well as of iron oxide, phosphorus, copper, silica and silicates, and perhaps in other ways, it prevents hot shortness, both red and yellow. It does not, however, counteract the cold shortness caused by phosphorus.

These effects are so valuable, that it is today well nigh indispensable, though admirable steel was made before its use was introduced. It is thought to increase tensile strength slightly, add hardness and fluidity, to raise the elastic limit, and at least when present in considerable quantity to diminish fusibility.

It is generally thought to diminish ductility, but evidence will be offered tending to show its effects have been exaggerated.

While 1.5 per cent to 2.5 per cent of manganese is nearly universally admitted to cause brittleness, steel with 8 per cent manganese is astonishingly ductile; with further increase of manganese the ductility again diminishes.

Steel with 8 to 10 per cent manganese, though extremely tough, is so hard as to be employed without quenching for cutting tools.

It is denied and asserted with equal positiveness that manganese confers upon steel the power of becoming harder when suddenly cooled, but it is generally thought to make it crack when quenched.

Oxide of manganese gives slags a strong characteristic green color, considerable fluidity, and makes them so strongly corrosive that their effects on the linings of furnaces must be guarded against.

Manganese appears to volatilize with considerable rapidity at a white heat.

A large percentage of manganese, as in ferro-manganese, raises the melting point of iron, but in smaller percentage may lower it.

Be it by increasing the solubility of gases in steel so that it retains, while solifying, the gas which is dissolved when molten, be it by preventing the oxidation of carbon and the formation of carbonic oxide, manganese like silicon, though probably in a lesser degree thoroughly hinders the formation of blowholes.

Ingots containing 0.005 per cent silicon and which but for manganese would be exceedingly porous, are rendered by it comparatively solid.

Manganese not only counteracts the red shortness caused by sulphur, but in some cases actually removes it.

Besides bodily removing sulphur from iron, manganese counteracts the effects of that which remains. This it may do by giving the particles of the metal greater mobility and plasticity at forging heats.

The special variety of hot shortness thought to be due to phosphorus, like that caused by sulphur, is counteracted by manganese, but probably rather by making the steel plastic and thus counteracting the tendency to crystallize, which phosphorus causes, than by its forming phosphate of manganese, and thus preventing the direct action of phosphorus on the matrix of iron.

Most of the manganese that is added to the steel passes immediately into the slag. If the metal contains sulphur and phosphorus in any important amount, it is desirable that a considerable quantity be added to counteract these effects. Manganese may affect tensile strength and ductility in steel both indirectly and restraining the formation of blowholes and directly by entering into chemical union with the metal, but so far as it prevents blowholes, it doubtless increases both tensile strength and ductility.

[1]A paper presented before the Crucible Club, Jackson, O.

[2]Chemist for the Portsmouth Steel Co., Portsmouth, O.

Steel Channels Decision.—In a protest of the Napier Motor Co. of America, Boston, the United States customs board of general appraisers held that steel channels for car trucks are dutiable at ½ cent per pound and not at 4.7 cents per pound as "steel in all forms and shapes, not specially provided for," and accordingly sustained the claim in the protest.

AN INDUSTRIAL RAILROAD INSTALLATION AT THE SHELBY STEEL TUBE WORKS.

The after effects of the stagnant commercial period are becoming evident everywhere.

An excellent example of a modern industrial road properly installed is that of the Shelby Tube Works at Ellwood City, Pa., which installation was made by the Arthur Koppel Co., of Pittsburg. This road is installed to be used in connection with cranes. The cranes are used to handle bulk materials in space, while the industrial road is used to carry materials, both raw and finished, on the ground floor and

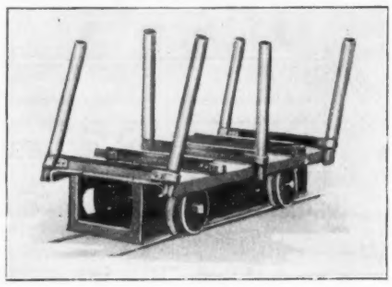


Fig. 1—Koppel Specially Designed Car of All-Steel Construction.

between the cranes, also by its use these materials can be placed at any desired intervening point. The cranes, of which there are two, run on either side of the plant for the entire length of the building, while the industrial track is used to connect the cranes and runs the entire width of the building at either end. Thus a complete circuit of conveyance is formed by which materials can be loaded or unloaded at any point. The road is 24-inch gage and consists of the Koppel Co.'s portable track made of 20-pound rails in 15-foot lengths; the track is embedded in the floor and planks are fitted between the rails and brought up to a level with the floor so that it can be crossed without interference.

The switches used in the system are of a 30-foot radius and are made of corresponding material to the track. The Koppel Co.'s patent ball-bearing turntables form an important part in the system. These turntables are capable of supporting a load of four tons and are easily manipulated by one man with a loaded car on the table.

The cars used in the system were specially designed by the Arthur Koppel Co., which makes a specialty of this work. The cars are a platform type of all-steel construction, as shown in Fig. 1. They are 8 feet long and 3 feet wide and the rigid underframe support of channel steel adds material-

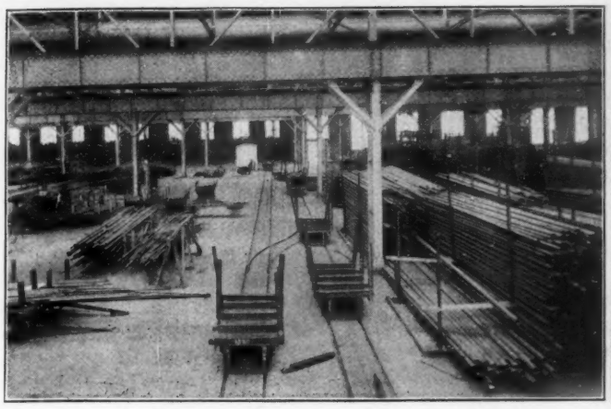


FIG. 2—INTERIOR OF SHELBY PLANT, SHOWING CARS AND CROSSOVERS.

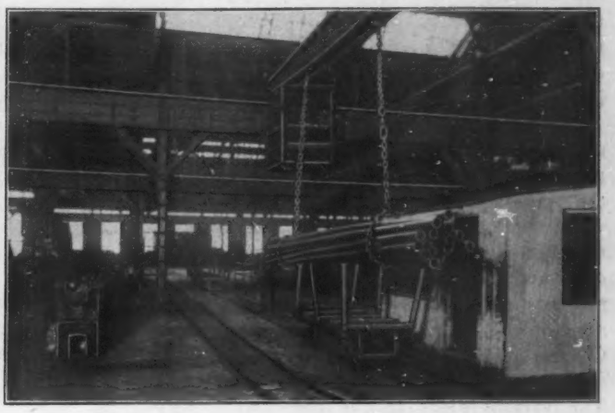


FIG. 3—KOPPEL INSTALLATION AS USED WITH TRAVELING CRANE.

ly to the durability of the car. Five transverse 3-inch I-beams are mounted on the top of the car, the end of each being finished with a stake pocket in which pipe stakes are fitted. The wheel base of the car is 30 inches and the wheels are of cast steel and are equipped with Koppel patented roller bearing. Together with the 30-inch wheel base a radial axle construction is used which permits the car to take the curves with ease. The entire construction of the car is light, yet strong enough to answer its purpose and was put together with a view of economy in operation. A loaded car can be pushed by two men.

SAMUEL MATHER.

(Continued from page 72.)

Baltic and Caspian mines. Besides these, the list includes the Calumet, Fogarty, Hemlock, Vivian and several explorations. The company is also shipping agent for the Negaunee, Alberta, Mineral, Pewabic Co., Jennings, Hector and Spring mines.

The amount of ore handled by Pickands, Mather & Co. in 1907 was 4,152,904 tons. The company has always been a pioneer in the development field, especially on the Menominee and Gogebic ranges. It was also one of the first to undertake work on the Cayuga range, and for a long time the shaft put down on the property it had leased was the only surface work, outside of drilling, that had been done on the range. At the same time, its mines and equipment indicate that conservatism which is a characteristic of the company. In the last few years considerable attention has been directed to the Syracuse and Bangor mines, and the successful outcome of a struggle, several years long, to open up these deposits on the Mesabi is awaited with great interest.

BOOK REVIEW.

The Blast Furnace and the Manufacture of Pig Iron, by Robert Forsythe. New York. The David Williams Co. 364 pages. Illustrated. 6½ x 9½ inches. Cloth. Supplied by THE IRON TRADE REVIEW for $3.00.

The large number of volumes already in circulation and the multiplicity of matter relating to the subjects covered by the book under review might very reasonably give rise to the belief that there is little occasion and no special value in still another book on this branch of the iron industry. Robert Forsythe's book is, however, a distinct addition to existing technical literature and the value of any store of information will be enhanced by supplementing with this volume. It is true that no longer can a book lay claim to a special field of usefulness simply because it contains information about the blast furnace or pig iron, but the utilitarian purpose of the author as expressed in the preface is so successfully carried out that his book well may be considered one of the requisite volumes to those to whom information on this subject is valuable. In writing this volume, Robert Forsythe was influenced to do so by the lack of such a book, as he had often felt the need as student, teacher and practical blast furnace operator. His purpose was that this book should contain what he wanted to know as a beginner when he was not able to supply or infer the connecting links which so many texts take for granted the reader will know. He sought to present information in a way that would add to the mere statement of fact, an accurate conception of the actual physical adaptation of those facts. His object was to provide a text book and reference which could be consulted with easy understanding and which possessed that quality which gives to the reader confidence that, with the information at hand, he can go to the blast furnace or foundry and find there the actual facts, in the same relations as presented in the book and with something like a familiar aspect. Ideas or knowledge thus presented become real assets as one goes about his work or study meeting the conditions to which the text applies. Life is too short for each man to learn everything through his own actual experience. We buy books, therefore, expecting to buy someone's else experience and in reading make it our own. Too many books through faults of phraseology or fact or arrangement, fail to convey to the reader impressions which equip him for meeting familiarly in practice facts about which he has read and therein the reader fails to obtain that for which he purchases any technical book. The author has here displayed unusual ability in making up the text of just the things one wants to know and in just the connection one is seeking to be informed upon and in this alone he has given to the book a unique value. The explanations under the topics discussed smack of the plant and seem more like a verbal narrative of a trip of inspection, with the ore pile or the furnace bosh directly before one, than words on a printed page.

The subject matter is treated logically in seven chapters. Chapter I has to do with the characteristics and preparation of the various materials which make up the furnace charge. It is preceded by an introductory section in which the various elements contained in the materials burdening the furnace are discussed in their effects upon the resultant pig iron. The opening chapter indicates splendid judgment in discriminating between that which requires detailed explana-

tion and that which needs only general treatment. The calculation of the ore mixtures is fully explained and the chapter in general gives an adequate idea of the choosing of raw materials.

Chapter II contains unusual information about many of the furnace parts included in the construction of the plant and this description is made doubly valuable because focused in the light of the author's large experience and familiarity. This chapter presents many facts which are rarely accessible to the ordinary operator. Chapter III is a familiar treatment of the operation of the furnace. The various steps in the mechanical control of the smelting process, the proper manipulation of the furnace accessories and the handling of the cast are logically commented upon. The two following chapters have to do with burdening the stack and the chemical actions which take place in the conversion of the charge into pig iron. A complete calculation of the furnace burden is given and the action, functions and control of the slag are explained at length. The temperature effects at various levels of the stacks are discussed and the proper treatment suggested.

While it is often said that the best furnace superintendents are never busy because they keep their stacks in good shape, it is an unusual stack that does not have its irregularities and chapter VI of this book contains some exceedingly interesting reading regarding the various troubles, the evidences of them, their causes and remedies. The closing chapter on design and equipment should be of very great assistance as a reference to the engineer and to the manager who is contemplating improvements. By text and mathematical calculations desirable features to be obtained in choosing the make-up of a plant are indicated. A supplementary chapter on the uses of pig iron will be of service to the purchasers of the metal because of the information given regarding the influence of the various elements in pig iron as affecting its use for different purposes. An appendix of the simpler and common chemical principles involved in the manufacture of iron is added.

The Copper Handbook, Vol. VII. By Horace J. Stevens, Houghton, Mich. Published by the author. 6 x 9 inches. 1228 pages. Cloth. Supplied by THE IRON TRADE REVIEW for $5.00

The Copper Handbook in its seventh volume is decidedly larger than a year ago. The new matter amounts to about 180,000 words. We mention this with regret. The Handbook is now of a size as to be confined for that reason alone to library reference and the word, handbook, is almost a misnomer. This work, to which the author has been devoting himself for the past seven years, has a distinct field, and most commendable results have been obtained. We can conceive of no more valuable or complete use of such a vehicle as the Copper Handbook has come to be, than an essential devotion to the last two chapters of the present volume. Chapters XXIV and XXV, in which are given the important mines and mining companies throughout the world with essential descriptive matter and a collection of general copper statistics, may well be made in our estimation the especial forte and "preserve" of the Copper Handbook. Here is much valuable information and a subject well worth the entire efforts of the editor. We feel with the publisher that it is indeed to be regretted that this part of the handbook above all others could not have been given in Volume VII a careful revision. These chapters alone make the book worth while to those who have connections with the copper industry as business man or investor.

The first 14 chapters of the text divide themselves naturally into two parts. The introductory portion of 13 chapters is a general treatment of the subject of copper as a mineral, ore, metal and commercial product. Compared with the ground covered the matter is brief, but an attempt is made to outline in a semi-popular style the processes of mining, metallurgical treatment and refining. There is much too little of the condensed style in this text which is the salient advantage of handbook information. For an exhaustive inquiry into any of the subjects presented this work does not suffice and undoubtedly is not intended to. On the other hand either for the reason that the subjects themselves seem unnecessary in a work of this character or because much more than the essential facts are presented this text is much too bulky for the requirements of quick reference. The same may be said, though not to a like extent, of that part of the book in Chapters XIV to XXIII which covers the occurrence of copper in various parts of the world. With such excellent works on these very subjects intended for the very readers to whom the Handbook naturally goes as have been written by Peters, Weed and others, already available, a much briefer presentation of this matter would seem to be more suitable.

Steam Turbines, by Carl C. Thomas, Professor of Marine Engineering, Sibley College, Cornell University. Third edition. New York. John Wiley & Sons. xiii + 334 pages. 6 x 9 inches. Cloth. Supplied by THE IRON TRADE REVIEW for $4.

The first edition of this book was reviewed in THE IRON TRADE REVIEW of June 7, 1906. The present edition contains all the matter given in the first edition, together with some new problems in the design of the Curtis & Parsons turbines, suggestions regarding turbine analysis and a diagram of the heat-contents of steam. The superheated region of this diagram is plotted from the result of the author's investigations of the specific heat of superheated steam, which was presented by the American Society of Mechanical Engineers, December, 1907. The diagram is laid out as suggested by Dr. Mollier, the coordinates being entropy, and total heat contents. This diagram is convenient inasmuch as heat units are read on straight lines instead of on curves as in the temporary-entropy diagram. The present edition also contains new material relating to the application of steam-turbines to marine propulsion, also illustrations of the most recent turbine steamers. Chapter headings in the present edition are the same as those in the first edition.

The Electric Furnace, Its Evolution, Theory and Practice. By Alfred Stansfield, D. Sc. New York. Hill Publishing Co. 6 x 9½ inches. XI + 211 pages. Cloth. Supplied by THE IRON TRADE REVIEW for $2.

This book is a comprehensive resume of the electric furnace, its construction, design and use in the smelting of iron and steel and other metals. It is divided into seven chapters and presents 14 tables and 53 illustrations. The first chapter of the book is devoted to a history of the electric furnace and describes the work of Siemens, Heroult, Moissan and other investigators. Chapter II classifies the electric furnaces, dividing them into arc furnaces and resistance furnaces, the latter type being subdivided into furnaces with and without special resistors, and electrolytic furnaces. Chapter III takes up efficiency calculations and shows the relative efficiency of the electric furnace and furnaces of other types. It shows that the electric furnace in large units possesses a heat efficiency from 60 to 85 per cent, while a crucible steel furnace, coke fired, has an efficiency of only 2 to 3 per cent. These two types represent the extremes in efficiency, reverberatory regenerative and shaft furnaces ranging in between the two. Considerable matter is given in the calculation of furnace efficiency in these chapters, together with

tables of heat. Chapter IV discusses the design, construction and operation of electric furnaces, giving the specifications of the various refractory materials available for this purpose. The method of producing heat is taken up also, and the means by which this is done by different investigators as Moissan, Heroult, Stassano and others. The proper voltage and regulation of furnaces receive considerable attention, as does the question of resistivity of the various materials employed. Chapter V is devoted to the production of iron and steel in the electric furnace and presents illustrations and descriptions of the various furnaces used for this purpose. Chapter VI discusses other uses of the electric furnace, among which may be mentioned the production of ferro-alloys, graphite and carbides, zinc and electrolytic processes. The final chapter is devoted to future developments. The book covers its subject quite thoroughly and is a comprehensive review of all that has been attempted in electric furnace work.

The Metallurgy of Iron and Steel, by Bradley Stoughton. New York. The Hill Publishing Co. 6½ x 9½ inches. 509 pages. viii + 509 pages. 309 illustrations. Cloth. Supplied by THE IRON TRADE REVIEW for $3.00.

The Metallurgy of Iron and Steel, by Bradley Stoughton, contains 19 chapters, covering in a most admirable manner the iron and steel industries of the United States.

In the introduction the author gives a valuable series of definitions of the various classes of iron and steel together with a complete bibliography of the text-books upon their metallurgy.

In Chapter II he describes the ores of iron, cites the injurious effects of their impurities upon steel, gives a complete description of the manufacture of pig iron, and writes the series of equations involved in the different processes of reduction of the ores to the metallic state.

Chapter III compares the different processes utilized in the purification of pig iron.

Chapters V and VI give a detailed description of the processes involved in the manufacture of steel, together with important formulae and analyses of furnace charges.

The seventh chapter shows how to guard against blow holes, shrinkage, cavities, crystallization and segregation, all of which are injurious to good steel.

Chapter VIII takes up the discussion of how strength and efficiency may be imparted to steel through proper mechanical treatment.

Chapter XI brings out the modern theory of solid solutions and introduces freezing and decomposition curves.

Chapter XIV shows the methods of discovering the deleterious effects of overheated steel and the way to counteract them. It also outlines many theories on the hardening of steel.

Chapter XV is devoted to alloy steels which owe their properties chiefly to an element other than carbon. It also gives the composition, structure, hardness, and uses to which each alloy steel is peculiarly adapted.

In his chapter upon the corrosion of steel, the author points out the fallacy of Cushman's theory that carbonic acid, or some other acid, is necessary for corrosion. He clearly states that the ions of hydrogen cause the metal to pass into solution, and enumerates various preventives for such disintegration of the metal.

The final chapter throws so much light upon the fundamental principles of chemistry and physics as applied to metallurgy that the book can be comprehended by the student of metallurgy who is so unfortunate as to be without that technical training.

The complete bibliography at the close of each chapter is a noteworthy feature of the work.

Upon the whole, this comprehensive treatment of our iron and steel industries, born out of the varied experiences and ripe scholarship of Bradley Stoughton, is one of the first, if not the first of its class, to be placed in the hands of all students of engineering and architecture.

Although the book seems designed for colleges and universities, no man interested in iron and steel can afford to be without this most valuable work in his library.

Steel Rail Specifications. — The American Bureau of Inspection and Tests, Chicago, is issuing a pamphlet of 20 pages presenting the recent steel rail specifications adopted by the American Railway Association, and the specifications for steel rails and splices as adopted by the manufacturers of the United States and Canada. The pamphlet also contains the report of the committee on standard rail and wheel sections of the American Railway Association.

Great Britain's iron ore production in 1907 is reported at 15,731,604 long tons, an increase over the previous year of 331,199 tons, or 2.2 per cent. From mines 10,039,064 tons were produced, and from quarries or open pits 5,692,540 tons. Imports of ore during the year aggregated 23,370,538 tons.

PROGRESS MADE

In Developing Cuban Ore Properties of the Pennsylvania Steel Co.

In connection with the sale of $1,000,000 Spanish-American Iron Co. 20-year 6 per cent guaranteed gold bonds, President E. C. Felton of the Pennsylvania Steel Co. gives some interesting information on the progress made in developing the ore properties at Mayari, on the north shore of Cuba, where the properties of these interests are estimated to contain 600,000,000 tons of iron ore. Mr. Felton says:

The Spanish-American Iron Co. is now constructing a standard gage railroad of the highest type, with steel or concrete bridges and culverts, and having a maximum curvature of six degrees and a maximum grade of one-half of 1 per cent, which will connect the harbor terminals with the foot of the inclined planes, down which the ore is lowered by gravity from the top of the mountain where the mines are located. Ample facilities of the most modern type in the shape of electrically operated drying and storage plants, and loading and discharging docks, will be provided for the economical handling and treatment of ore. The properties are most advantageously located for development and for economical mining, the ore being a surface deposit without any cover, which can be taken out with steam shovels just as clay is dug out of an ordinary clay bank.

The lands are at present largely covered by a good growth of pine timber which will command a ready and profitable market in the island of Cuba, whose supply of pine lumber is now imported in large quantities from our southern states.

The Mayari ore, when freed from the water which it contains, shows a high percentage of iron, is very low in phosphorus, and is otherwise a most desirable material for the manufacture of all high-grade steels. We have been experimenting in a practical way with this ore for the past four years and have brought into this country about 5,000 tons which has been treated in our blast furnaces and manufactured into rails and other steel products. The rails have already been in service on the main line of the Pennsylvania railroad for more than two years at points where they are subjected to the severest conditions of wear, and they are showing qualities superior to those of the standard rails regularly used by that company.

The active work of developing the properties was begun in May, 1907, and has since made satisfactory progress. At this date the grading of the main line railroad is completed, foundations for bridges are in place and the steel bridges are on the ground in Cuba ready to be erected. The grading of the inclined planes and the dredging of the harbor at the terminal are about three-quarters finished. The erection of steel buildings for electric power plants, shops, etc., is under way, and engines, boilers and machinery are either in Cuba or in this country awaiting the completion of the buildings in which they are to be placed. Houses for superintendents, foremen and laborers have been largely completed.

Prices Rise on Market Dullness

One of the most uninteresting market weeks of the year, in fact, in many years, came to an end Friday with prices at a general higher level. It opened Monday with a rise, sagging ensuing the middle of the short week, and ended Friday with that day marked by the smallest number of share sales since May 27, 1896. Still the gains made in the early part of the week were regained and the close of the market found it taking an upturn. Expert opinion inclined to the opinion that the latter turn may be a preliminary to a bid for bond investment by the public of the $200,000,000 mid-year dividend and interest disbursements. However, general interest in the bond market has not been generously displayed of late and bond experts would fain look with hopeful eye upon later autumn developments. The market absolutely ignored the appointment of receivers for additional industrial and railroad concerns and other bearish news.

The puzzle to ordinarily fair market judges has been the course taken by steel and iron stocks. When standard railroad issues dropped until it would seem that the entire market must follow, yet industrial stocks have made gains. The past week Steel preferred advanced one point and common ⅜; Republic Steel preferred, 3¼, and common, 1⅛; International Pump preferred, 2 points, and common, 1⅛; and Pipe & Foundry recovered ⅝, and preferred, 1½; other industrials regaining fractionally.

The bank statement for the five days showed as expected the effect of the trust companies' withdrawals to bring their proportion of reserve up to the new 10 per cent requirement which went into effect the first of the month. The $11,300,000 decrease in cash compared with the known movement of money into the bank reserves of over $3,000,000. The actual clearing house bank increase in loans covering some of this trust company movement was $22,495,500. Specie decreased $17,778,800 while deposits increased $5,019,400. The percentage of reserve was 28.98, a decrease of 1.65 per cent. The statement of state banks and trust companies showed loans increased $2,684,700; net deposits increased $13,845,000, and percentage of reserve 36.2, an increase of 3.5 per cent. For one day call money advanced to 2 per cent and immediately dropped to 1½ per cent. Time money has become a drug on the market.

Failures for the first half of the year as reported to Bradstreet's numbered 7,560 with liabilities of $178,555,882 and assets of $103,168,993. This was an increase of 58 per cent over the number reported for the same period last year, 41 per cent over that of 1904 and 21 per cent over that of 1893. June failures were small by comparison with previous months according to Dun's, comparing more favorably with last year's figures than any previous month of 1908. Failures in April, May and June in the aggregate were one-third less than in January, February and March. Shares to the number of 851,600 were sold during the week compared with 1,593,365 last week and 2,311,500 a year ago. Bond sales, exclusive of government bonds, aggregated $9,548,000, compared with $8,628,000 last week and $4,449,000 for the corresponding week a year ago.

New York. — Amalgamated Copper closed 66½, a net gain of ¾.

Boston. — Butte Coalition closed 22½, a net gain of ½; Calumet & Arizona closed 109½, a net gain of 1½; Calumet & Hecla closed 660, no change; North Butte Mining closed 67, a net gain of ¾; Quincy Mining closed 88, a net gain of 3½.

Financial Notes.

The La Belle Iron Works declared a dividend of 2 per cent quarterly and 33-1/3 per cent stock dividend to be declared out of surplus earnings. This increases the capital stock from $7,500,000 to $10,000,000. The directors passed resolutions to list the stock on the New York stock exchange. The Bostwick Steel Lath Co. declared its semi-annual dividend of 3 per cent; U. S. Cast Iron Pipe & Foundry Co., the regular quarterly dividend of 1¾ per cent on preferred, payable Sept. 1; the American Brake Shoe & Foundry Co., regular quarterly dividends of 1 per cent on common and 1¾ per cent on preferred, payable June 30.

THE LEADING INDUSTRIAL SECURITIES.

	Closing Quo. July 5	Changes in Week	Date 1908 Ann. M't'g	Stock Outstanding	Dividend Basis	Dividend Last Declared	Dividend Date Last Div. Pay.
Allis-Chalmers	11¾	+1	Sept. 3	19,820 000			
Allis-Chalmers pr	35½	+1		16.150,000	7 cum	1¾ Q.	Feb., 1904
American Can	4½	− ⅛	Feb. 3	41.233.300			
Am. Can pr	54¾	+1⅛		41,233,300	7 cum	1¾ Q.	July, 1908
Am. Car & Foundry	84⅜	+1	June 25	30,000,000		½ Q.	July, 1908
Am. Car & Fdy. pr	97⅜	.....		30,000,000	7 n. c.	1¾ Q.	July, 1908
American Loc	48⅛	+1	Oct. 20	25,000,000	5	1¼ Q.	May, 1908
American Loc. pr	102	+ ⅜		25.000,000	7 cum	1¾ Q.	April, 1908
American Ship	43	+ ¾	Oct. 14	7.60 ,000	4	1 Q.	June, 1908
American Ship pr	100½	.....		7,900,000	7 n. c	1¾ Q.	April, 1908
Am. Steel Foundries	7½	+ ½	Oct. 6	15.810 000			
Am. Steel Foundries pr	37	+2½		17,240,000	6 cum	2½	Aug., 1904
Barney & Smith	50	.....	June 2	2.000,000	4	1 Q.	Sept., 1907
Barney & Smith pr	105	.....		2.500 000	8 cum	2 Q.	June, 1908
Bethlehem Steel	15⅜	.....	April 7	14.862,000			
Bethlehem Steel pr	44	.....		14,908.000	7 n. c.	¾ Q.	Feb., 1907
Cambria Steel	31½	+ ⅜	March 17	45,000,000*	6	1½ S. A.	Feb., 1903
Cambria Iron	45	.....		8,468,000*	4	2 S. A.	April, 1908
Chicago Pneumatic Tool	.....	.....	Feb. 17	6,145,800	4	1 Q.	Oct., 1907
Colorado Fuel	26¾	− ⅛	Oct. 19	34 235 500		3⅛	April, 1902
Crucible Steel	53¾	− ⅛	Oct. 21	24,578 400		.....	.....
Crucible Steel pr	40¼	− ¾		24,436.500	7 cum	1 Q.	Dec., 1907
Empire Steel	8	.....	Feb. 26	1,254,770		.....	.....
Empire Steel pr	45	.....		2 500,000	6 cum	3 S. A.	July, 1907
Fay & Egan	100	.....	Feb. 18	1,000,000	6	1½ Q.	May, 1908
Fay & Egan pr	110	.....		1,000 000	7 cum	1¾ Q.	May, 1908
General Electric	130½	−3½	May 12	65,167,400	8	2 Q.	July, 1908
Harbison-Walker	13	.....	Jan. 20	18,000,000		½	Oct., 1907
Harbison-Walker pr	70	+1		9.6 0.000	6 cum	1½ Q.	April. 1908
International Pump	23⅜	+1⅛	June 2	17.787.300		1	April, 1905
International Pump pr	78	+2		13,835.000	6 cum	1½ Q.	May, 1908
Lackawanna Steel	34	.....	March 11	34,971 400		.....	.....
Lake Sup. Corp	5¾	.....	Oct. 7	40,000,000			
New York Air Brake	66½	− ⅝	June 18	8 012,500	8	2 Q.	Oct., 1907
Niles-Bement-Pond	130	.....	Feb. 5	8.000 000	6	1½ Q.	June, 1908
Niles-Bement-Pond pr	100	.....		2.000,000	6 cum	1½ Q.	May. 1908
Otis Elevator Co.	34	−1	March 16	6 156,600		1½ S. A.	April, 1908
Otis Elevator Co. pr	88	.....		5 449,500	6 n. c	1½ Q.	July, 1908
Penn. Steel	60	.....	May 11	10.7?0 000		.....	.....
Penn. Steel pr	96	.....		16.5 0 400	7 n. c.	3½ S. A.	May, 1908
Pittsburg Coal Co	11	− ⅛	Feb. 10	28.853.400		.....	Nov., 1906
Pittsburg Coal Co. pr	41½	− ¾		27,080.800	7 c.	1¾	April, 1905
Pressed Steel Car	28	+ ⅛	Feb. 19	12,500,000		3	Aug., 1904
Pressed Steel Car pr	82¾	−1¼		12.500.000	7 n. c.	1¾ Q.	May, 1908
Pullman	155¼	−2¾	Nov. 11	100 000.000	8	2 Q.	May, 1908
Railway Stl. Spring	36	−1	March 5	13,500,000	4	2 S. A.	April, 1908
Railway Stl. Spring pr	95⅛	+ ⅛		13,500,000	7 cum	1¾ Q.	June, 1908
Rep. Iron & Steel	18⅛	+1⅛	Oct. 21	27,191.000		.....	.....
Rep. Iron & Steel pr	67⅛	+3¼		20,416.900	7 cum	1¾ Q.	April, 1908
Sloss-Sheffield	51¼	+1	March 11	10,000,000	5	1 Q	June, 1908
Sloss-Sheffield pr	96⅜	+1		6,700.0 0	7 n. c.	1¾ Q.	July, 1908
U. S. Pipe & Fdy	21	+ ⅜	June 24	12,500,000	4	1 Q.	Dec., 1907
U. S. Pipe & Fdy pr	66	+1½		12.500,000	7 n. c	1¾ Q.	June, 1908
U. S. Steel	38¾	+ ⅜	April 20	508,302,500	2 n. c.	½ Q.	June, 1908
U. S. Steel pr	103⅜	+1		360,281,100	7 cum	1¾ Q.	June, 1908
U. S. Steel 5'	97⅞	+1¾		463,798,000	5	5 A.	.....
Va. Iron. Coal & Coke	49½	+1½	Nov. 17	9.073 680		.....	.....
WestinghouseElec	53¾	−1⅛	June 24	23 933.200*	10	2½ Q.	Oct., 1907
WestinghouseAir Brake	98	−1	Oct. 6	11.000,000*		2½ Q.	July, 1908

Par value of shares, $100, except those starred (*), $50

NEWS FROM MANY INDUSTRIES

New Buyers:—

The Barkelew Metal Products Co., Dayton, O., capitalized at $12,000, has been incorporated by Charles S. Barkelew, Eleanor W. Barkelew, Charles E. Margerum, W. H. Johnson and John Hartman.

The American Magnetic Wheel Co., Cleveland, electrical machinery, has been incorporated by Willis B. Hale, Washington Hoyt, M. Fred Nellis, W. H. Seagrave and J. M. Shallenberger, with $10,000 capital stock.

The Lebanon Foundry Co. has been organized and will establish a plant at Lebanon, Pa. The company is capitalized at $50,000 with G. W. Norwood, W. J. De Vol, Phil Adler, W. S. Ritchie, C. A. Gillhan, J. H. Hoy and J. L. Wallace as the directors.

The Climax Lock & Ventilator Co., Buffalo, N. Y., has been incorporated to manufacture locks, ventilators and hardware, with $150,000 capital. Those interested are Adolph Rosenberg, Chicago; Charles J. Fix and Charles A. Pooley, Buffalo, N. Y.

The Robinson Standard Pipe Tong Co., Casey, Ill., has filed articles of incorporation to manufacture iron implements, with $30,000 capital stock. The incorporators include Forster Robinson, William W. Hagerson, William K. Biggs and William A. Forster.

The Jefferson Iron & Supply Co., Birmingham, Ala., has been incorporated with $3,000 capital stock. The officers of the company are: E. O. Howle, president and general manager; E. L. Pauley, vice president; and J. L. Cross, secretary and treasurer.

A charter has been granted to the Danville Gas Furnace Co., Danville, Pa., with $5,000 capital, to manufacture gas furnaces to fire boilers. The incorporators are: John G. McHenry, Benton, Pa.; S. Lowenstein, Joseph Lowenstein and C. P. Harder, Danville, Pa.; Joseph M. Schain, Berwick, Pa.

The Universal Rolling Mills Co., Washington, Pa., has been chartered to manufacture sheets, plates and special shapes. It has $75,000 capital, the incorporators being John W. Hubbard, Pittsburg; L. V. Martinell, Deemston; H. B. Duncan, N. R. Baker and Walter H. Baker, Washington.

The Kellogg-Mackay-Cameron Co. of New York, De Witt, N. Y., has been granted a charter to manufacture boilers, radiators, pipe fittings, etc., with an authorized capital of $1,500,000. The incorporators are Adam N. Theobald and Irving N. Trangott, Syracuse, N. Y., and C. Borney, Salisbury, N. Y.

The Allentown Iron & Steel Co., Philadelphia, has been granted a Pennsylvania charter with $20,000 capital. The incorporators are Joseph T. Fox, 1416 Toronto street, Philadelphia; Edwin M. Dickson, Oreland, Pa.; George B. Allen, Joseph F. Fox, Charles Zoll and Joseph R. Phifer, Philadelphia, Pa.

The Clasm Engineering Co., New York City, tool maker, brass founder, metal worker, etc., capitalized at $25,000, has filed application for a charter through the following: William P. Christopher, 46 East Fourteenth street, Charles De Lukacsevices, 210 Canal street, both of New York, and Stanley P. Allen, Scranton, Pa.

The Newman-Andrew Co., New York City, has filed articles of incorporation. The company will deal in steel wire rods, draw plates and speed steel, etc., and has been incorporated by Charles Newman, Joseph Reynolds, 107 West street; Gordon Gordon, 52 William street; all of New York. The capital stock is $2,000.

The Buffalo Railway Wrench Co., Buffalo, has been chartered to manufacture wrenches, tools, machines, etc., with $50,000 capital. Those interested in the enterprise are Edward F. Walsh, 444 Porter avenue; Lucian C. Jackson, 234 West Fourteenth street; and Charles B. Moulthrop, 15 Mariner street, all of Buffalo.

Articles of incorporation have been filed by the Elgin Electrical Mfg. Co., Elgin, Ill., to manufacture electrical supplies and machinery, with $10,000 capital stock. The incorporators are M. E. Hepburn, L. B. Hamlin Jr., Charles G. Heywood.

The Hardware Supply Co. has been incorporated with $6,000 capital to manufacture hardware. Those interested in the new enterprise are: Louis L. Grauert, 819 Webster avenue; Charles W. Miller, 581 Palisade avenue; James A. Patterson, 27 Lexington avenue; all of Jersey City.

A charter has been granted to the New York & Ohio Buckle Co., New York City, to manufacture buckles and hardware specialties. The company is capitalized at $50,000 and has these incorporators: Russell Goldman, 71 East Eighty-seventh street; William J. Scanlon, 616 West 116th street; Herman Goldman, 50 East Eighty-sixth street, and Ad. Foshay, 49 Pulaski street; all of New York City.

The Western Foundry Supply Co., New York City, has been incorporated to mine and manufacture ferro-manganese, ferro-silicon, chrome, talc, sea-coal, plumbago, etc., with $500,000 capital stock. The incorporators are Howard D. Mosher, 64 Wall street; B. B. Coyne, C. H. Abbott, Joseph A. Lennon, 29 Broadway; W. C. Lawson, Alexander S. Murphy Jr., No. 1 Broadway, all of New York City; and G. A. McLaughlin, 1151 Dean street, Brooklyn.

New Construction:—

A permit to erect a foundry for the Killing Molding Machine Co., Davenport, Ia., has been issued to E. Plogman.

Announcement has been made that the New York Central will shortly begin the building of a new erecting shop at West Albany, N. Y., to cost $200,000.

The Metropolis Foundry & Machine Co., Metropolis, Ill., has completed the installation of machinery and foundry equipment which has been under way for some time.

Bids will be received for constructing an addition to the ordnance machine shop at Fort Smith, La., July 20, at the United States army quartermaster's headquarters at New Orleans.

The McClintic-Marshall Construction Co. is building a new template shop at its Rankin, Pa., plant. It is to be a two-story frame structure, 108 x 120 feet, with brick side walls.

An addition to the bridge works of George W. Jackson, Inc., on the northwestern branch of the Chicago river will be built on land adjoining the plant, which has just been purchased for $100,000.

The Nattatuck Mfg. Co., Waterbury, Conn., manufacturer of metal specialties, has had plans drawn for a new plant to be erected adjoining its present plant, the new building to be four stories in height, 42 x 148 feet, of brick mill construction.

Plans for the Imperial Locomotive & Machine Works, Montreal, have been prepared, and construction work

will begin soon. This will be the fourth plant of the kind in the locality of Montreal, thus making it one of the large locomotive building centers of North America.

The Western Steel & Foundry Co., Hegewisch, Chicago, has advertised for bids for a $250,000 addition to its plant, to be completed by fall. It is expected that the new plant will then employ 1,000 men in addition to the 2,000 now employed by the company.

Work on the new shops for the Idaho-Washington Northern, at Spirit Lake, Ida., is to be begun at once. The shops will include machine, construction and blacksmith shops, to be equipped with modern machine tools and appliances driven by separate motors. The shops are to cost $300,000.

E. E. Linthicum and other Birmingham, Ala., citizens propose to furnish $50,000 capital to build a new pressure pipe plant, and have received word of the acceptance by the Anniston chamber of commerce of their proposal, which includes the furnishing of $75,000 additional capital. Mr. Linthicum was formerly general manager of the Anniston plant of the United States Cast Iron Pipe & Foundry Co.

The Pfau Mfg. Co., Cincinnati, has instructed an architect to draw plans for the construction of a plant on the south side of Langden avenue and Idlewild, to cost between $90,000 and $100,000. The building will be four stories, brick, with a frontage on Langden of 327 feet, and a frontage of 60 feet on two other thoroughfares. The Hunt street plant will be abandoned upon the completion of the Idlewild building.

The Williamsport Radiator Co., Williamsport, Pa., whose plant has been shut down for seven weeks, has completed a number of repairs, and a new cupola, 80 inches in diameter with a capacity of 20 tons an hour has been installed, as well as a new boiler and engine. The machine shop has also undergone long contemplated improvements. The plant recently resumed operating with enough orders on hand to keep it running a long time.

General Industrial:—

The Scully Steel & Iron Co., Chicago, has increased its capital from $1,500,000 to $2,175,000.

The Fowler Nail Co., New Haven, Conn., has filed a certificate of increase of capital stock from $120,000 to $180,000.

The Logansport Radiator Equipment Co., Logansport, Ind., has increased its capital stock from $50,000 to $75,000.

The American Brake Shoe & Foundry Co., Mahwah, N. J., advises that it is undecided as to rebuilding the works recently damaged by fire at Bloomfield, N. J.

The works of the Wilmington Iron Co., South Wilmington, Del., are being thoroughly overhauled and the machinery repaired, foreshadowing probable early resumption.

The Northwestern Steel & Iron Works, Eau Claire, Wis., writes that its capital stock has been increased to $150,000 for the purpose of equipping its factory to take better care of increased business.

The Bath Iron Works, Ltd., Bath, Me., ship builder and engineer, advises that it is rebuilding its plant recently badly damaged by fire with its own force of men, and that satisfactory progress is being made in replacing the buildings.

A bridge gang in the employ of the Penn Bridge Co. is making a long trip to place the bascule lift of the new city bridge at Peoria, Ill. The work gang has just completed a contract for the Penn company on the Isthmus of Panama, and is being sent to Peoria.

The C., B. & Q. railroad has increased by 500 tons its rail order recently placed with the Illinois Steel Co. The steel company has received other orders aggregating 2,000 tons, within the last few days.

The entire plant, including real estate, of the Neafie & Levy Ship & Engine Building Co., Philadelphia, will be sold July 28, at receiver's auction sale. The property includes a group of buildings covering eight acres, with a Delaware river frontage of 400 feet.

The Canadian Pacific railway has placed an order with the Locomotive & Machine Co., Montreal, for 20 locomotives for freight purposes to be delivered by Sept. 15.

The directors of the Burden Iron Co., Troy, N. Y., elected these officers June 18: President, James A. Burden; vice president, William P. Burden; general manager, John L. Arts; secretary, Nicholas J. Gable.

The Thomas Mfg. Co., Springfield, O., manufacturer of agricultural implements, recently shipped 21 carloads of machines to various points throughout the United States. Its product of haying machines has met with such ready demand that this is counted the banner year of the company in marketing that product.

The Hamilton Tool Co., Hamilton, Can., has been organized by a number of Hamilton investors to manufacture steel tools. It is planned to locate the plant in the north corner of the Hoefner Refining Co.'s building. It will employ 50 or 60 men at the start. It is announced that the company is not a branch of any United States concern, but altogether a Canadian company.

The stockholders of the Teter-Heaney Development Co., and of the Heaney Wire Proof Co., York, Pa., are depositing their stock in compliance with the terms of the deal for its purchase by the Hebershaw Wire Co., Yonkers, N. Y. The holdings to be turned over represent about $2,500,000, and in return the holders will be given stock in the new combination. Following the proposed reorganization, it is planned to enlarge the wire plant at York, Pa. One hundred machines will be installed, increasing its capacity considerably.

The American Steel Wheel Co., Alexandria, Ind., whose incorporation was recently noted, has organized by the election of the following officers: President, J. G. Brannum; first vice president, J. T. Postal; second vice president, R. S. Stephenson; secretary, A. A. Gallman; and treasurer, John Merker. The company is the successor of the Keefer-Heart Iron & Steel Co., manufacturer of sheet steel wheels. It has been decided to begin at once the erection of additional buildings, the first to be 55 x 155 feet, brick, with concrete floors. The building will be equipped with heavy machinery, much of which following special designs by Master Mechanic Welch, and will be driven by individual motors.

At a meeting of the creditors of the Rockwell Engineering Co., furnaces, New York City, June 18, a statement was presented showing appraised assets of about $45,000, and appraised liabilities of about $52,000. An agreement for liquidation was presented and unanimously signed by the creditors present and by stockholders of the company, these trustees being named: J. H. Rogers, J. L. White and W. S. Rockwell.

The business of the Cleveland Castings Pattern Co., Cleveland, shows a nice increase during the past six months over the same period of last year. During the past week the company has secured orders from two big concerns for making patterns for several sizes of large engine frames, in addition to many smaller orders, and

is working a large force of men full time in all departments.

The Fulton Foundry Co., Erie, Pa., marine gasoline engines, has been organized to manufacture marine gasoline engines of the two-cycle type, in sizes from 2½ to 15 horsepower, single and double cylinder. This engine has for the past four years been made by the Art Machine Co., Brooklyn, and the Fulton company has simply taken over that part of the business. At present the company is having its manufacturing done at Baltimore, and definite arrangements for the future have not yet been perfected. The executive office is located in Erie, in charge of President J. S. Van Cleave and Treasurer J. C. Spencer. The sales offices are located in Brooklyn, at 223 Fulton street, in charge of Secretary and Engineer J. E. Baldwin.

The Union Steel Screen Co., Ltd., Albion, Mich., manufacturer of oven racks, sand and coal screens and wire novelties, bought on June 17 the plant and equipment of the Ideal Mfg. Co., Lafayette, Ind. The stock and machinery of this plant will be at once removed to Albion and all goods manufactured as before in the Albion plant. This added equipment gives the Union Steel Screen Co. a much larger line to manufacture and will include a full line of oven racks, refrigerator shelves, wire guards, enclosures and novelties.

The Trumbull Mfg. Co., Warren, O., engineer, founder and machinist, writes respecting a recent fire which destroyed the roof of the core oven, core room and the tower and machinery of the stock elevator. It is intended simply to replace these in statu quo ante, except to make them fireproof.

The Ames Iron Works Co. has officially announced that its plant will remain in Oswego, N. Y., and that the proposed improvements will be made to the plant. The company expects to begin work on its new plant at once, and hopes that much of the work of preparation will be out of the way before winter.

A high wind wrecked the plant of the Byesville Foundry & Machine Shop, Byesville, O., which was in course of construction. The building in which machinery had not yet been placed was demolished. It was valued at about $15,000.

Under a court order, Receiver Fred C. Ketter will shortly endeavor to wind up the receivership of the Portsmouth Pressed Steel Co., Portsmouth, O., by offering the plant for sale. Attorneys representing the creditors informed the court that the plant can not be operated to advantage under existing conditions.

The Lannert King Co., Cleveland, recently incorporated, advises that it will devote its entire facilities for the time being to the manufacture of cotton machinery. It will not open the foundry for some time.

The Southern Railway Co. has begun the improvement of its line to the Anniston, Ala., plant of the Woodstock Iron & Steel Corporation. The work of relining the stack of the latter concern is being pushed night and day, and it is probable that the improvements will be completed earlier than first thought for.

Ed E. Large has been named receiver of the Ashtabula Foundry Co., Ashtabula, O., on the petition of J. F. Mills, of Port Chester, N. Y. Mr. Mills avers that the company's assets do not exceed $15,000, and that he has become security for the company for over $10,000 now due; that no business has been done for the past seven months, and that the plant has been dismantled.

The Atlas Construction & Engineering Co., Reading, Pa., whose incorporation was recently noted, advises that it has entered the general construction business, and will make a specialty of electric railways. At the present time it is not in the market for equipment, having decided to lease such machinery as it may require this year.

At a meeting of the stockholders of the Consolidated Iron Works, held at Santa Ana, Cal., the organization was completed by the election of these officers: President, F. W. Barto; vice president, W. S. Stacy; secretary and treasurer, N. W. Maddox. Another meeting will be held at which steps will be taken toward enlarging the present shops and adding machinery.

The Champlain & Danford Railroad Co. has applied to the New York City public service commission for a charter to operate a road 56 miles long in Essex county. The company states that it proposes to provide facilities for the transportation of iron from the Adirondacks. The deposits are near the town of Newcomb, preliminary explorations indicating the presence of a large body of ore, with an average content of 50 per cent iron.

The car and locomotive repair work of the Wabash-Pittsburg Terminal and the West Side Belt railroads will be done at Rook, five miles out of Pittsburg, in the future, according to the action of the roads' receivers. This work has heretofore been done at Norwalk, O. About 700 men will be employed at the Rook shops. Preliminary arrangements have been made for the erection of the shops at Rook.

Wm. Swindell & Bros., engineer and contractor, German National Bank building, Pittsburg, Pa., has received an order from the Superior Steel Co., Carnegie, Pa., for two large Swindell patent regenerative heating furnaces. They have also received an order from the West Leechburg Stove Co., West Leechburg, Pa., for one large Swindell patent regenerative heating furnace. Both of these firms have a number of these furnaces in operation.

Trade Notes:—

The administrative offices of the Youngstown Sheet & Tube Co., Youngstown, O., have been removed to the eighth floor of the recently completed Stambaugh building, in the public square.

Fires.—

The King & Walker Machine Shop, Madison, Wis., was badly damaged, June 28, the loss being about $10,000.

The foundry of the Sylecau Mfg. Co., Rock Hill, S. C., was severely damaged, June 23, the loss being about $15,000.

The Allan Brass Foundry, Bloomington, Ill., was slightly damaged by fire, June 22.

The National Brass Works, at Lexington avenue and Humphrey street, Oak Park, Chicago, sustained a damage of about $20,000, June 20, through a fire starting in the buffing room.

Steel Wool Case.—The treasury department has just acquiesced in the court of appeals' decision rendered Dec. 4 last, in the steel wool case after application for writ of certiorari was denied by the supreme court to the government. The merchandise was steel shavings used for polishing hardwood furniture. It was mainly claimed by the importers to be dutiable at specific rates as manufactures from wire under paragraph 137 and the government contended that the wool was dutiable as steel in all forms and shapes under paragraph 135. The Beuhne Steel Wool Co. is the successful litigant.

The Engineers' Club, of Philadelphia, has removed to its new quarters, 1317 Spruce street, Philadelphia.

New Pig Iron Tariffs.—The Railway Commission of Ohio has received new freight tariffs, issued by the C. H. & D. railroad, giving rates on pig iron from Hamilton, to take effect Aug. 1. The rates are as follows: To Connersville, Ind., 60 cents; to Indianapolis, Ind. $1.10; to Springfield, O., 75 cents; to Dayton, O., 60 cents; to Sidney, O., $1; to Marion, Ind., $1.10; to Cincinnati, 40 cents. These rates are 40 cents per ton less to the gas belt than rates from Wellston, and are 30 cents per ton less than from Columbus, to the gas belt. The rate from Wellston and Ironton to Cincinnati is $1.20, giving Hamilton an advantage of 80 cents per ton. As yet there is no evidence of the Pennsylvania railroad having published any rates from Hamilton. It has been suggested that the new rates from Hamilton may bring about dissatisfaction and result in disturbing rates fixed from other Ohio producing districts. The rate on ore from Toledo to Hamilton is 67½ cents per ton.

Preliminary Work.—The Colorado Fuel & Iron Co. has put a force of men to work on the Oro Quay iron deposits in the district 30 miles south of Santa Fe, New Mexico, doing preliminary work preceding the development of the iron ore deposits. The ore land has been leased from the Oro Quay Gold Mining & Reduction Co., which retains the right to mine the precious metals on the property. The iron deposits are said to be of high grade and extensive.

Plan Shelby Tube Plant.—Following the announcement of the officers of the National Tube Co. that for the present nothing would be done toward rebuilding the Shelby, O., plant, recently burned, the Business Men's Association of Shelby has commenced the organization of an independent steel tube mill company to be located in that town.

TRADE PUBLICATIONS.

LATHES.—The Lodge & Shipley Machine Tool Co., Cincinnati. Catalog "S." 107 pages. The lathes described in this booklet are especially designed for using high speed steels and contain constructional features that mean more work with longer life in alignment and wider range of usefulness than is found in the ordinary engine lathe. Detailed descriptions with numerous illustrations are given of all the various parts of these lathes, including the patent headstock, the tailstock and bed, carriage and apron, screw cutting and feed mechanism, cone headstock, motor drive, turrets, etc., and the equipments that are desired. Specifications and tables showing motor speed are given also.

FERRO-INCLAVE.—The Brown Hoisting Machinery Co., Cleveland. 1908 catalog. 35 pages. 6 x 9 inches, relating to ferro-inclave, a corrugated sheet steel of special shape, used principally in the construction of fire resisting roofing, siding, flooring, etc., for factory buildings, power plants and the like. A general description detailing each operation in the construction of a ferro-inclave roof with illustrations showing the various steps is given and its advantages are pointed out. Ferro-inclave can also be used for stairways, highway bridges, cornices and moldings, water tanks, etc. A number of tests made upon ferro-inclave sheets and the results obtained are presented in this catalog.

ROLLER BEARINGS.—The Hyatt Roller Bearing Co., Newark, N. J. Bulletin 31. 24 pages. 6 x 9 inches. The Hyatt flexible rollers, bearings and bushings are illustrated and described, giving design, operation, construction, load, speed, capacity, dimensions, price lists, etc.

MACHINE TOOLS.—The Garvin Machine Co., Spring and Varick streets, New York. International catalog, edition C, printed in three languages, English, French and German. 96 pages. 6 x 9 inches, illustrating and describing standard universal and plain milling machines, hand milling machines, vertical milling machines, motor-driven milling machines, universal cutter and tool grinders, die slotting machines and the principal standard milling machine attachments, with tables of dimensions.

MACHINERY.—The Standard Sand & Machine Co., Cleveland. General catalog No. 4. 123 pages. 6 x 9 inches. This catalog embodies many new and important features in principle, as well as mechanical construction, of the different machines shown. The illustrations shown in the booklet are reproductions from photographs and sketches of the machinery in actual use, adapted to almost any known industry. The company makes a specialty of sand mixing, screening, tempering, elevating and conveying machinery for continuous molding, adapted to all foundries, hard wall plaster plants, artificial stone plants, sand lime brick plants or any other plants where sand, gravel, broken stone, coke, iron, coal, etc., are to be mixed, screened, elevated or conveyed. Among the numerous subjects dealt with in this booklet which are described and illustrated may be mentioned feed hoppers, air compressors, conveyors, bevel gears, mixing plants, cast iron pulleys, rivets, sprocket chains and wheels, journal flat boxes, rammers, sand mixers and screens, dumping cars, dryers, post hangers, etc. Tables of weights and measures, areas and circumferences are also given.

VALVES.—The Schutte & Koerting Co., Philadelphia. Sectional catalog 8, illustrative and descriptive of balanced stop and throttle valves and balanced trip and trip throttle valves, showing the construction of balanced valves, based upon the principle of a loose fitting piston connected directly with the valve disc. The illustrations include the Schutte balanced screw spindle stop and throttle valves, inverted balanced screw spindle valves, balanced lever valves, through spindle lever valves, balanced valves with hydraulic operating cylinder and four-way cocks, balanced valves with locking dogs, throttle valves with by-pass, throttle valves for hoisting engines, special valves, etc.; also price lists and tables of dimensions are given. The trip and trip throttle valves are intended as emergency shut-off or engine stop valves, operated either by hand, direct, or with electric solenoid and push button, or automatically by governor attached directly to the engine. The Schutte engine stops, electric solenoids, independent contact governors, automatic governors, etc., and the Schutte extension rods and stands for balanced valves are also illustrated and described.

ELECTRICALLY - DRIVEN TOOLS.—The Jas. Clark Jr. Electric Co., Louisville, is distributing a large catalog dealing with "Willey" electrically-driven tools. Some of the various tools described and illustrated include the "Willey" electric hand drill, electrically-driven breast drill, electrically-driven screw feed portable drill, center grinder with hand feed, hand grinder and buffer, surface grinder, bench grinder, water tool grinder, electrically-driven hack saw, friction driven sensitive drill, locomotive turntable motor, various types of motors and generators, etc. Tables of dimensions of each type are also given. A partial list of users of "Willey" electrically-driven tools is given and a few testimonials are presented.

ELECTRIC CRANE FITTINGS.—The Electric Controller & Supply Co., Cleveland. Bulletin No. 281. 24 pages. This booklet gives instructions for ordering the various articles manufactured by the above company and other important data. Tables of dimensions and price lists are given of the different types of articles. Knife switches, circuit breakers, type B rosettes, crane switch boards, cast grid resistance, coil resistance, type B limit stops, universal insulator supports, Baehr flexible couplings, etc., are fully described and illustrated.

FEED WATER HEATERS AND RECEIVERS.—The Bates Machine Co., Joliet, Ill. Catalog. 6 x 9 inches. 64 pages, relating to the Cookson improved combination feed water heater, purifier, filter and oil separator and condensation receiver. The catalog illustrates and describes four styles of feed-water heaters and also the manner of setting and connecting the heaters. Among the many advantages claimed for this heater may be mentioned—high temperature of feed water without back pressure; reversible in operation; built on the interchangeable plan; duplicates of any part can be had at any time in case of accident; can be taken apart with a wrench without breaking pipe connections, etc. Directions for setting, connecting and operating the heater are presented.

GREASE.—Olney & Warrin, 66-68 Centre street, New York City, is issuing a folder relating to "Howard Grease," a lubricant for shafting and bearings and very useful to mill operators.

SEPARATORS.—The Ohio Blower Co., Cleveland. Catalog No. 116. 79 pages. 6 x 9 inches. This catalog contains numerous illustrations and descriptions of oil and steam separators, exhaust heads of various types, high and low pressure and standard flanges, riveted joints, ventilators, etc.; also dimensions, installations, price lists of the same, tables of circles, areas and circumferences. Useful engineering data are presented and the development of the helic-centrifugal principle is outlined in detail. Some results of tests made on the "Swartwout" steam separator are also given in this booklet.

CARS.—The Chase Foundry & Mfg. Co., Columbus, Ohio. Catalog No. 8. 152 pages, pertaining to trucks, cars, wheels, axles and boxings, switches, turntables, steel ties, portable track and all kinds of industrial railway equipment. Some of the various types of trucks described and illustrated include standard warehouse, railroad, freight, packing house trucks, patent folding back truck, roller bearing general purpose truck, platform, heavy machine shop wagon, steel and sheet metal trucks, numerous other types being listed. The roller bearing brick car, open frame flat car, transfer car, drying car, rocker dump car, revolving dump car, bottom dump car, tramway and contractors' car, etc., are described and illustrated with price lists and tables of dimensions. The latter portion of the catalog is devoted to list prices of wheels, boxings, axles, etc., and a very complete repair list.